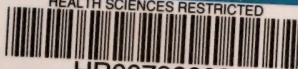


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TABLE OF CONTENTS

	Page
1. Focal Symptoms in General Paralysis, by C. Macfie	
Campbell, M. A., B. Sc., M. D.,	5
General Introduction,	5
Cases of general paralysis with focal symptoms on the basis of vascular disorders (Group i), . . .	19
Review of Group i,	32
Cases of general paralysis with focal symptoms on the basis of localized severity of the general paralysis process (Group ii),	34
Review of Group ii,	46
Cases of general paralysis with focal symptoms of traumatic origin (Group iii),	47
Review of Group iii,	50
Cases of general paralysis with focal symptoms with- out clinico-anatomical correlation (Group iv), . .	52
Review of Group iv,	58
Summary of Results,	59
Appendix—Clinical Observations,	63
2. Minutes of Quarterly Conference, February, 1914, . .	139
Report of the Secretary of the Retirement Board for Employees,	140
Report of Committee on Retirement Fund for Officers, .	143

“Heating and Ventilation from the Physician’s Point of View,” by Dr. R. H. Hutchings,	148
Report of Committee on the Study of the Alcoholic Psychoses,	152
Report of Committee on Statistics and Forms,	152, 163
Remarks of Mr. Quinn in regard to prices paid for coal, with discussion,	153
Report on Bill amending the Public Health Law,	164

FOCAL SYMPTOMS IN GENERAL PARALYSIS.*

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GENERAL INTRODUCTION.

The opening years of the twentieth century have proved to be an exceedingly fruitful period for the study of general paralysis of the insane. In the nineteenth century general paralysis was early recognized by the French school to be a more or less independent disease with a well-defined symptomatology and characteristic course (Esquirol, Bayle, Calmeil). The etiological importance of syphilis gradually won recognition on statistical grounds; the unsatisfactory nature of this form of proof, however, was sufficiently clear from the extraordinary divergence of the statistics furnished by the various authors. The pathological anatomy of the disease gave rise to much controversy from an early date. In the same year, 1826, Bayle and Calmeil, both drawing their material from Charenton, published works on general paralysis. For Bayle the essence of the disorder is a chronic meningitis, the disease is referred to as "insanity with incomplete paralysis due to chronic meningitis;" Calmeil, commenting with some severity on the views of Bayle, maintains that the morbid process is essentially a chronic encephalitis, an inflammation which especially involves the surface of the brain and the meninges. In the second half of the nineteenth century the presence of a degenerative and of an inflammatory element in the pathological picture was recognized, and the question was keenly debated which of these two elements was primary; an exact analysis of the inflammatory element is a comparatively recent achievement.

* Thesis presented in July, 1911, to the University of Edinburgh for the degree of M. D.

The very important progress which the pathological anatomy of general paralysis has made within recent years is well illustrated by the fact that, as late as 1896 Nissl was making his pathological diagnosis of general paralysis on the basis of his general impression of the anatomical picture, without clear insight into the differential histopathological details; what is more, his statements at that date were partly based upon the examination of cases clinically diagnosed general paralysis, which later experience taught him to exclude from that group, and which at the present day would not even clinically be considered as clear cases of general paralysis.

Within the last decade the question of general paralysis has entered on a new phase; new methods and results have largely altered the formulation of the problems, and in the rapid transformation thus brought about adjustment to the altered situation has not always been adequate. It is hoped that in this communication the present situation of the problem may be brought to a clear focus; the want of a clear definition of the general problem hampers considerably a common understanding and stands in the way of useful coöperation. It is this want of a common understanding, and the facts which are responsible for it, that make it necessary to publish in some detail the observations of the cases which form the material of this thesis.

As this study is not historical in character, little reference will be made to the individual steps in the development of the three main lines of recent advance in our knowledge of general paralysis. In the clinical sphere the examination of the cerebro-spinal fluid has been the main acquisition; histopathological research has yielded valuable differential criteria; serological studies have established on firmer ground the connection between syphilis and general paralysis.*

The introduction of the cytological examination of the cerebro-spinal fluid into psychiatric procedure by the French school, in 1901, gave the clinician an extremely useful aid in the task of distinguishing between the organic and the functional psychoses, and made possible a more

* Vid. foot-note p. 8.

refined diagnosis of the organic dementias; the method has proved to be of special value in differentiating general paralysis from certain similar clinical pictures, arising on a different anatomical basis (alcoholic dementia, arteriosclerotic dementia, senile dementia).

Where the practical problem arises in the individual case of differentiating between general paralysis and one of these latter forms of dementia, the cytological examination of the cerebro-spinal fluid is now an indispensable procedure; to report cases of somewhat doubtful symptomatology, e. g., presenting a picture similar to that of Korsakow's psychosis, without the results of lumbar puncture, and then to refer to these cases as examples of general paralysis is to needlessly cumber the literature. It is obvious that (in the absence of histopathological examination) this consideration should make one accept with reserve conclusions based on observations which antedate 1901.

In the histopathology of general paralysis the researches of Nissl¹ and Alzheimer,² published in 1904, make an epoch. For the first time Alzheimer gave a full description of the histopathological changes in general paralysis on the basis of an adequate material (170 cases), his communication being admirably illustrated; since 1904, therefore, we have had available a trustworthy histopathological criterion of general paralysis, which has superseded the naked eye appearances of the brain and the merely impressionistic result of microscopical examination.

It is important to receive with caution results based on cases where this criterion has not been applied, for naked eye appearances may be inconclusive and a microscopical examination, which is expressed in such terms as, e. g., "round-celled infiltrate," embracing glia-cells, lymphocytes, plasma-cells, indicates an altogether insufficient analysis.

Alzheimer cites examples to show how misleading gross appearances may be; in a case, clinically diagnosed senile dementia, the autopsy disclosed thickening of the cranium with disappearance of the diploe, very pronounced thickening and clouding of the pia, hydrocephalus externus and internus, ependymal granulations, marked cerebral

atrophy, most marked in the frontal region; the microscopical examination, however, confirmed the clinical diagnosis. In another case the microscopical examination confirmed the clinical diagnosis of general paralysis, although at the autopsy there was nothing in the gross appearance of the brain to suggest the diagnosis.

An excellent example of the danger of making a diagnosis on the basis of the naked eye appearance of the brain, in a clinically doubtful case, is furnished by Case 5 of the present series, where the naked eye appearances led the pathologist, who did the autopsy, to consider the case one of cerebral arteriosclerosis and to rule out general paralysis; microscopical examination, however, disclosed the histopathological changes of general paralysis. The case had clinically presented many difficulties; without a satisfactory microscopical examination this case might have been used as a case of arteriosclerotic dementia to invalidate the differential importance of certain of the clinical features (the disorder of speech and of writing, the pupillary anomalies, the character of the attacks, the progressive course). Such a case shows the danger of using observations of older date, even although anatomical examination is said to have confirmed the clinical diagnosis. To a certain extent, therefore, the whole subject of general paralysis needs to be worked over anew; and the presentation of the case-material used in this thesis can not be considered superfluous.

The third great advance in the last decade was the introduction in 1906 of the method of Wassermann and its application to the problem of general paralysis; there was thus given a bio-chemical demonstration of the connection of syphilis with general paralysis, which had hitherto rested mainly on statistical grounds.*

In none of the three lines of advance has finality been reached; each step in advance has raised wider problems. The cytological examination of the cerebro-spinal fluid has enabled one to recognize many cases of general paralysis

* Since this was written in 1911 the last link in the chain of evidence establishing the syphilitic etiology of general paralysis has been supplied by H. Noguchi and J. W. Moore: A Demonstration of *Treponema Pallidum* in the Brain in Cases of General Paralysis. Jour. Exper. Med., Feb., 1913.

The term meta-syphilis will have to yield to that of parenchymatous syphilis.

which previously escaped attention, and to exclude many cases of dementia which had previously been wrongly included in the group of general paralysis. The meaning of a lymphocytosis of the cerebro-spinal fluid is, however, still a matter of considerable obscurity; it may be met with in a great variety of conditions, e. g., in cerebral syphilis, in tabes, in non-syphilitic brain tumor, in multiple sclerosis, perhaps in cerebral arteriosclerosis with cortical softening, etc. In no case can the diagnosis be mechanically turned out from the centrifuge.

The exact value of a lymphocytosis with regard to the diagnosis of general paralysis is not definitely settled, and the question is needlessly complicated by observations of doubtful value which are found in the literature; thus cases of general paralysis without lymphocytosis are referred to, even although there has been no anatomical examination. In this connection it must be remembered that the determination of the presence or absence of a lymphocytosis depends upon a somewhat delicate technique (if one use the French method); the absence of lymphocytosis in a suspected case of general paralysis should call for a renewed examination of the cerebro-spinal fluid, and for a more searching clinical examination, while the case can only have demonstrative value when the clinical diagnosis has been confirmed by autopsy with microscopical examination.

The researches of Nissl and Alzheimer have not finally solved the problem of the essence of the paralytic process; they have, however, yielded an invaluable practical criterion. That this is not the essence of the process may be seen by the fact that the same histopathological changes were found by Nissl in the cortex of a dog and of two rabbits. The great advance made by the publication of Nissl and Alzheimer is that it enables us in the whole general paralysis question to start from a homogeneous group, with regard to which a common understanding can be arrived at. To start from this common ground, to restrict the term general paralysis to this central homogeneous group is not to beg the question, nor to prejudge the question of the actual relationship of certain difficult cases to the classical

type of general paralysis. The clinical and anatomical conception of general paralysis may in the course of further investigations be further extended and modified; from the point of view of method the only safe starting point is that which limits the term to a certain clinical group, the limits of which are defined provisionally by the histopathological criteria of Nissl and Alzheimer. That this attitude needs to be emphasized is apparent on reading the observations in the literature; even such a serious author as Nonne,³ in discussing the difficult question of the curability of general paralysis, bases his view on four observations, the propriety of which must be questioned, especially when one is aware of the extraordinary difficulty of differentiating clinically between cerebral syphilis and general paralysis. The question of method is here so important, that these cases may be referred to in detail. In the first case there is no mention made of an autopsy; the case as reported can not be differentiated from one of cerebral syphilis and the date of the observation is not given. This is important as, during the last ten years, the analysis of the clinical picture has received much more attention than previously, and clinical differentiation has made considerable progress. Nonne's first case is not clearer clinically than that of the syphilitic wood-carver Gennaro P. (to be discussed later in the remarks on Case 1); but the point to be emphasized in the latter case is that we are not entitled at the present date to make a positive diagnosis on the clinical grounds alone, even after a cytological and serological examination of the cerebro-spinal fluid. The second case of Nonne suggests as much the clinical picture of cerebral syphilis (endarteritis and meningitis) as that of general paralysis; the course tends to confirm the former diagnosis; without histopathological evidence the diagnosis of general paralysis in this case is far from established. In the third case the mental picture receives very summary mention, the physical picture is inconclusive, no autopsy was made; Case 4 of my series (W. C.) presented a clinical picture equally suggestive of general paralysis, but anatomical examination disclosed the presence of gummata in the brain. In Nonne's

fourth case the diagnosis of cerebral syphilis can not be excluded, and, to judge by the summary report and the course of the disease, seems as probable as that of general paralysis.

These cases have been referred to in some detail in order that it may be fully realized how current views on general paralysis are apt to be based on very unsatisfactory evidence, and how even serious workers fail to realize the difficulty of the clinical differentiation of cerebral syphilis and general paralysis.

In many reports of atypical cases we read the brief statement that the case was diagnosed general paralysis by a "competent authority"; such a statement has no value in comparison with a presentation of the clinical facts with, where possible, the results of a histopathological examination. The clinical differentiation of cerebral syphilis from general paralysis is in certain cases at present *impossible*, and even the histopathological differentiation may occasionally present the greatest difficulty; the pathologist has not said the last word on the question.

With regard to such questions as whether general paralysis is curable, general paralysis is at present in the same position as tuberculous meningitis was before lumbar puncture gave one an absolute clinical criterion of the disease. Osler in the third edition of his text-book (1898), discussing the prognosis of tuberculous meningitis, says, "Cases of recovery have been reported by reliable authorities, but they are extremely rare, and there is always a reasonable doubt as to the correctness of the diagnosis."

Since then a few cases of recovery of absolutely certain diagnosis (demonstration of the bacillus in the cerebro-spinal fluid) have been placed on record. What have we in general paralysis to compare with the demonstration of the bacillus in tuberculous meningitis?

The most recent of the three important advances in the study of general paralysis has been the introduction of the Wassermann reaction in 1906. This reaction, elaborated in accordance with certain serological principles, is a complicated biochemical process, the interpretation of which is not

free from ambiguity, however valuable it is as an empirical aid in differentiation. Its exact value as an aid towards differentiating a syphilitic from a metasymphilitic process in the individual case is not yet definitely established. While the value of the reaction itself is under discussion, it can not be used to decide definitely a difficult individual case, otherwise there is apt to be a vicious circle; the reaction is used to classify the cases, and then the cases are used to determine the value of the reaction. In the absence of an unexceptionable clinical criterion cases of atypical symptomatology or course should not be used in determining the differential value of the reaction, unless there has been also a histopathological examination.

I have recently had under observation a woman (I. T.) who, on her first admission to the hospital in March, 1899, was diagnosed general paralysis on what appeared to be satisfactory grounds; after ten months she was discharged improved and was able to conduct her household, except during two brief periods, for the following ten years. On re-admission in December, 1909, she presented a characteristic picture of the simple demented type of general paralysis, with characteristic defect of memory; the knee-jerks were active, the pupils were unequal, reacted very faintly to light, defectively on accommodation; tremor of tongue; the speech was hesitating without tremor or transposition of letters; the writing showed striking distortion of words with transposition of letters; slight lymphocytosis of the cerebro-spinal fluid, 4 to 8 cells in the oil-immersion field, with positive butyric acid test; the cerebro-spinal fluid, examined by Dr. Noguchi by the original Wassermann method and by his own modification, gave a negative reaction. In view of the atypical course of the disorder I do not consider that it is justifiable to use such a case as an example of general paralysis in a discussion of the value of the Wassermann reaction, until the clinical diagnosis, however well founded it may appear, is confirmed by microscopical examination.

That the results of the cytological and serological examination of the cerebro-spinal fluid require to be carefully weighed along with the history of the development and the

symptomatology, in the formulation of a diagnosis, is obvious from the following case. The patient (H. W.), a man of 40 with a history of syphilitic infection, was admitted in a state of mild euphoric dementia; there was double optic atrophy, exaggeration of the knee-jerks, slight tremor of the hands and tongue, practically intact speech; no history of vomiting nor of headache; the cerebro-spinal fluid contained 110 cells per c. mm., and gave positive reaction with the Noguchi modification of the Wassermann method, as did the blood serum (Dr. Henderson).

In the absence of tumor symptoms the diagnosis of general paralysis was at first considered to be the most probable; the further course was a progressive decline without additional neurological symptoms; it was therefore thought that, in the absence of the more distinctive clinical features of general paralysis, a basal process of syphilitic nature (gumma, meningitis) was more probable. The autopsy disclosed an endothelioma in the region of the hypophysis, without any evidence of general paralysis or of a syphilitic process. The serological examination in this case had been rather misleading.

It is hoped that the preceding argument is sufficient to demonstrate the cardinal importance of the rôle played by histopathological examination in the prosecution of researches on general paralysis.

The following is a brief summary of the histopathological changes characteristic of general paralysis, as described by Alzheimer in 1904.

1. The *pia mater* shows diffuse changes, usually most marked over the frontal lobe; these changes consist essentially of an infiltration of the pia with cellular elements, plasma-cells, lymphocytes and mast-cells; in addition the vessel-walls show progressive and regressive changes.

With regard to the cortex it is convenient to describe first the mesodermal elements and then the ectodermal elements.

2. There is proliferation of the endothelial cells of the vessels with a marked tendency to the new formation of vessels through sprouting and vascularization of the proliferated intima. There is increase of the elastica and pro-

liferation of the adventitia; there is widening and infiltration of the lymph-spaces, which exist in the adventitial coat of the vessel wall. Among the infiltrating cells, plasma-cells are the most numerous; they are never absent in a case of general paralysis, even in the most acute. Lymphocytes and mast-cells are also found in the infiltrate. In advanced cases the vessel walls show regressive changes. Long rod-shaped or sausage-shaped cells are found in the cortex, their long diameter tending to run parallel with the medullary rays.

As to the ectodermal elements:

3. The nerve-cells show a great variety of degenerative forms, the meaning of which is as yet quite obscure; in advanced cases the nerve cells have in part disappeared. The usual orderly arrangement of the cells in the cortex is more or less disturbed. There is usually considerable degeneration of the medullated fibres in the cortex.

With regard to the non-nervous ectodermal tissue, *i. e.*, the neuroglia:

4. There is always a marked proliferation of the glia; this proliferation leads at first to the formation of numerous large glia cells, which form a large number of fibers and in very advanced cases dense tissue of thick glia fibers. The most marked increase is situated in the molecular layer and along the vessel-sheaths.

The changes in the rest of the nervous system in general paralysis, the nature and degree of affection of the central ganglia, cerebellum, spinal cord, need not be referred to here.

The work of Nissl and Alzheimer has not solved all the problems of the pathological anatomy of general paralysis; the meaning of the various elements in the histopathological picture, and the relation of the whole picture to the disease itself are quite obscure; the exact origin of various cells is still far from clear; the interpretation of certain findings has required revision, *e. g.*, certain vessel changes, considered by Alzheimer to represent a progressive proliferative process, have been shown by Cerletti,⁴ using new technique, to be due probably to a regressive process. The

value of the hispathological criterion, however, has in no way been affected by such minor modifications, and it enables us, in taking up the study of the organic dementias, to start with a common understanding in a way which was impossible before 1904.

So long as there was no definite criterion of what was general paralysis, no clear delimitation of the symptomatology was possible, nor could the wider problems of the disorder be satisfactorily attacked. In this communication, which is offered as a contribution to the symptomatology and pathological anatomy of the disorder, an endeavor is made to focus as clearly as possible certain central problems of general paralysis and to present some clinical material which may help towards the solution of these problems; to understand clearly the nature of a problem is already a step towards its solution.

The symptomatology of general paralysis is so varied that, in discussing the differential diagnosis, almost every other form of mental disorder must be referred to. The difficulty of diagnosis is not only present in the incipient stage of the disorder; even in the later stages, when the patient presents symptoms of advanced physical and mental deterioration, there may be great difficulty in distinguishing between general paralysis and other organic dementias. In the incipient stage the problem usually consists in differentiating general paralysis from such conditions as neurasthenia, a functional depression or excitement (melancholia, mania, manic-depressive insanity), a toxic or infective-exhaustive psychosis, etc. The introduction of the examination of the cerebro-spinal fluid has given invaluable aid in such questions of differential diagnosis. The problems presented by cases in which such difficulties arise are numerous; the rôle played by the constitution of the individual, the etiological importance of other factors than syphilis, the relation of the onset of the disorder to the type and date of syphilitic infection, and to its treatment, the factors which determine remissions or a course otherwise atypical, these are merely a few of the questions which have yet to be answered. In addition the meaning of the

individual symptoms, e. g., the sign of Argyll Robertson, the characteristic speech defect, etc., has yet to be cleared up. In the later stages of the disease the differentiation between general paralysis and cases of cerebral lues, alcoholic dementia, senile dementia, arteriosclerotic dementia, brain tumor, etc., is frequently difficult.

An important group consists of those patients, who present focal as well as general symptoms. The relation of the focal symptoms to the general disorder is variable; they may occur long before the onset of the general symptoms, they may come on simultaneously with the latter, they may develop when the general disorder has already reached a late stage. The relation of the focal symptoms to the general disorder may be more or less close; it may be a question of casual coincidence, as in certain cases of tumor and general paralysis, trauma and general paralysis; the relation may be close and lie in the fact that the cause of the focal symptoms has the same root as the process of general paralysis, as in the combination of endarteritis obliterans with general paralysis; the focal symptoms may be still more closely related to the general disorder and may be due to the localized severity of the process of general paralysis itself. A systematic study of this group of cases appeared to be desirable in order that somewhat loose current views on the nature of the focal symptoms in general paralysis might be replaced by more accurate views, based on material, in which both the clinical and the anatomical examination was adequate; the study of those cases, where the focal symptoms were not the direct expression of the paralytic process itself, promised to throw light on the actual evolution of the disease. The present communication embodies the results of such a study. In presenting these results the aim has been, from the clinical standpoint, to give clearer definition to the symptomatology and course of such disorders, rather than to undertake a detailed analysis of individual symptoms; and secondly, from the point of view of pathological anatomy, to give succinctly the main results, which allow at least a crude clinico-anatomical correlation and which have to be con-

sidered in forming a conception of the evolution of the disease; practically no reference will be made to the detailed histopathological studies made in these cases.

This communication, therefore, is more or less of the nature of a preliminary study, in which the main outlines of the problems are given, and the lines of further research indicated.

I have been compelled, with some regret, to relegate to an appendix the actual clinical observations, which have been reduced to as brief a form as is compatible with the purpose of this thesis. No one, who is familiar with the issues and appreciates the difficulty of mutual understanding, can fail to realize the inadequacy of a large proportion of the observations published in the existing literature. I have, therefore, given each observation in sufficient detail to enable the reader to form a personal opinion on the case; some of the cases, with extremely complex symptomatology and course, are unusually long. In order that the continuity of the presentation might not be interrupted by such long individual observations, the latter have been placed in an appendix; these observations, however, are considered to be of primary importance and to form the essence of the communication, and the brief summaries given in the text are inadequate substitutes for the observations in the appendix.

The material used in this communication consists of 19 cases of general paralysis with focal symptoms, which were personally observed in the clinical service of the Psychiatric Institute of the New York State Hospitals, and in which a systematic examination of the central nervous system was made post mortem. The observations began in 1905 when the male division of the clinical service of the Psychiatric Institute was organized; several of the cases had already been in the hospital for some time; Case 14 (M. H.) was worked up by Dr. G. H. Kirby and was personally observed during the later period of her illness; Case 10 (G. W.) was under the care of Dr. D. K. Henderson. The autopsies were performed by Dr. G. Y. Rusk, with the exception of one of the later cases which was done by Dr. C. I. Lambert;

Dr. Lambert also studied the condition of the vessels in several of the cases, and I am indebted to him for several of the photographs illustrating the pathological changes in the vessels. All the technical work connected with the preparation of the brains was done in the laboratory of the Psychiatric Institute under the direction of Dr. C. B. Dunlap, Chief Associate in Neuropathology. Dr. Dunlap also made a careful routine examination of each brain and confirmed the diagnosis; some of the material was used by him for special topographical studies; his reports on these brains were placed freely at my disposal. I owe Dr. Dunlap a special debt of gratitude for his coöperation during the whole course of this work and for his constant willingness to discuss the interpretation of the pathological findings. The clinical study of the cases was carried on with the constant advice and encouragement of Dr. Adolf Meyer, then Director of the Psychiatric Institute, to whom in this, as in other studies, I owe so much.

I take this opportunity of thanking Dr. August Hoch, Director of the Psychiatric Institute, for his kindness in making this publication possible and in going over the communication with a view to its publication.

A few remarks as to the extent and methods of examination of the nervous system may here be in place. In every case a careful surface examination of the brain and its membranes was made, and microscopical sections from representative areas confirmed the clinical diagnosis; in the majority of the cases the fore-brain, mid-brain and hind-brain were cut in serial slices of less than 1 cm. thick so that no focus of softening was likely to escape detection. In the few cases where this was not done owing to preparations of a special nature being desired, an equally thorough search for focal softenings was made. Further study of the brain was carried on according to the type of lesion involved; in cases with vascular disorder and focal lesions the vessels received special attention and were studied in serial sections; in some cases with focal lesions the whole brain was cut in serial sections. Where the clinical symptoms indicated the likelihood of a specially localized severity

of the cortical process large topographical slices were cut, in order that the severity of the cortical process in various areas might be compared. The desirability of such cortical studies was emphasized by Nissl, but certain technical difficulties have to be considered. It is practically impossible to make a thorough cortical study of a whole brain. Alzheimer followed the method of examining small blocks from the various areas. It is obvious that this method leaves much to be desired, as so much territory remains unexplored. On the other hand the use of very large sections presents drawbacks; large celloidin sections are too thick for fine histological studies, and large paraffin sections, even although cut at $10\ \mu$ by the special microtome in use at the Institute, do not stain so satisfactorily as the smaller sections. The large paraffin sections, however, are adequate for certain topographical studies.

The difficulties in the interpretation of topographical variations are considerable. It must be remembered that the histopathological features which are characteristic of the paralytic cortex are merely reliable diagnostic criteria of the morbid process; we are not entitled to assume that the degree of intensity of these changes is a reliable guide to the severity of the morbid process, still less to the severity of the process at an earlier date. Moreover the various elements in the histopathological picture—vascular changes, perivascular infiltrate, degeneration of nerve-cells, neuroglia changes—do not always vary *pari passu*, and it must be remembered that we can not satisfactorily demonstrate an œdema or non-vascular exudate. We have therefore no sound standard of measurement of the severity of the process in any particular cortical area, and can at best only give an impressionistic opinion.

The 19 cases used in this study have been classified in the following four groups:

GROUP 1: *Cases of general paralysis with focal symptoms on the basis of vascular disorders* (4 cases). Along with these cases is presented a case of brain syphilis (gumma), in which the clinical picture could not be differentiated from that of general paralysis.

GROUP 2: *Cases of general paralysis with focal symptoms on the basis of localized severity of the process of general paralysis; Lissauer's Atypical General Paralysis* (6 cases).

GROUP 3: *Cases of general paralysis with focal symptoms of traumatic origin* (2 cases).

GROUP 4: *Cases of general paralysis with focal symptoms which are correlated neither with vascular disorders nor with localized severity of the process of general paralysis* (6 cases).

GROUP I. *Cases of general paralysis with focal symptoms on the basis of vascular disorders.*

Case 1. W. M.

Case 2. T. R.

Case 3. J. L. W.

Case 5. M. D. R.

Case 4. W. C. (*Lues cerebri*).

CASE 1 (p. 63). W. M., born in 1861; moderately alcoholic; no definite history of syphilis; twice married; wife never pregnant; in 1894 sudden onset of weakness of left arm and leg (? face) without unconsciousness; very slight residual weakness; in 1902-03, insidious onset of classical general paralysis; November 18, 1905, general convulsions followed by twitching and limpness of the left arm and leg, and by quasi-purposeful movements of the right arm; May 7, 1906, general convulsions with special twitching of the left face, arm and leg, followed by the same quasi-purposeful movements of the right arm; November 30, 1906, death.

Pathological Anatomy. Cortex, typical changes of general paralysis; subcortical softening of R. F. 3 (vid. Fig. 1); endarteritis obliterans, aneurysmal dilatation and occlusion of cerebral vessels (vid. Fig. 2 A).

Remarks on Case 1. In this case the first neurological episode consisted of a hemiplegic attack at the age of 33. At that age, in the absence of any general infection or valvular heart lesion, and of a few conditions such as brain tumor, a hemiplegic attack may safely be attributed to a syphilitic disorder, most commonly a syphilitic endarteritis. Eight years later the patient began to present evidence of

FOCAL SYMPTOMS IN GENERAL PARALYSIS

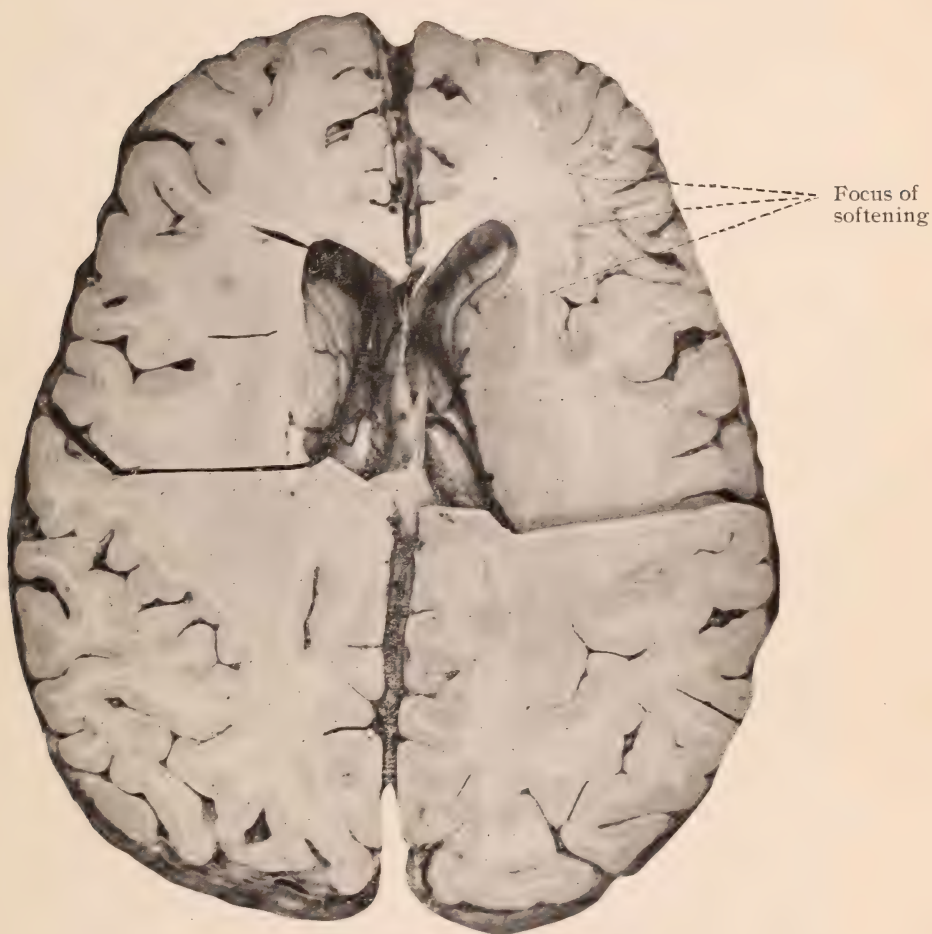


Fig. 1

CASE 1 (W. M.) Sub-cortical softening in R. F.₃

general paralysis. We, therefore, have here to deal with the insidious evolution of a case of syphilitic cerebral vascular disease into a case of general paralysis. In view of the fact that general paralysis seems only to occur in patients, who have at a long antecedent date had syphilis, it is not at all to be wondered at that at an earlier period the brain should be affected by the syphilitic poison. The fact that a brain at a late date is going to succumb to general paralysis is no guarantee of immunity from the earlier syphilitic lesions. The exact period of the evolution when the process has ceased to be merely a syphilitic process, and when the morbid process of general paralysis begins, and the nature of this evolution are questions of great interest. They raise the further question whether in the ordinary case of general paralysis the process is a unitary one, or whether there may not be at the same time both a syphilitic element and a meta-syphilitic element in the picture, or whether after all the so-called meta-syphilitic element may not merely be the further evolution of the syphilitic process. There are cases of brain syphilis, in which, alongside of the definite syphilitic lesions, there are histopathological changes so closely similar to those of general paralysis that only a careful analysis enables the distinction to be made; there can be no reasonable doubt that such cases are frequently, perhaps, as a rule, considered to be cases of general paralysis. Thus in the case of W. C. (Case 4, to be referred to later) in addition to gummata there was present a type of syphilitic disorder, to which Dunlap⁶ has recently called attention, which so closely resembles the process of general paralysis that the two are with difficulty separated. On the other hand Nissl has called attention to the fact that the proliferative changes in the cortical vessels in general paralysis are quite similar to those met with in a type of syphilitic vascular cortical disorder without any cellular exudate, which is associated with his name (syphilitic endarteritis of the small cortical vessels, Nissl); he has suggested the possibility that these vascular changes in general paralysis may have to be considered as directly syphilitic and that a

similar explanation for the degenerative processes of the parenchymatous elements can not as yet be excluded. The limits of our knowledge of the actual evolution of the process of general paralysis is further illustrated by a case to which brief reference may be made.

Gennaro P., had syphilis at the age of 19; in December, 1907, at the age of 40, he had an apoplectiform attack with residual left-sided weakness; after this attack he was inefficient at work, treated his wife outrageously, and finally was certified as insane. Physical status on admission (May 19, 1910): slight weakness of the left side, pupils Argyll Robertson, no defect of speech nor of writing, no tremor of fingers; lymphocytosis and increased globulin content of the cerebro-spinal fluid, Wassermann (Noguchi modification) positive with the cerebro-spinal fluid and blood serum (Dr. Henderson); the mental state was one of mild complacency with inadequate realization of the situation; his memory was slightly defective.

In this case we attribute the hemiplegic syndrome to a syphilitic endarteritis; the Argyll Robertson pupils and other symptoms point in the direction of general paralysis. The Wassermann reaction, which is so useful as a diagnostic criterion in separating syphilitic and non-syphilitic disorders here leaves us in the lurch; statistically, a positive reaction points towards general paralysis, but, in the present state of our knowledge, the further course of this case and of similar cases must be looked to for help in giving to the reaction its exact significance, while the reaction does not as yet enable us to form a more definite conception of the individual case. The reaction although elaborated according to certain biochemical principles is essentially an empirical criterion, and throws as yet comparatively little light on the actual evolution of the disease.

CASE 2 (p. 66). T. R., born in 1863, right-handed; syphilis (? date); February, 1897, transitory weakness of the right hand and impairment of speech, without loss of consciousness; November, 1897, attack of weakness of left arm and leg with impaired speech, without loss of consciousness; mental symptoms for two weeks; permanent residual

FOCAL SYMPTOMS IN GENERAL PARALYSIS

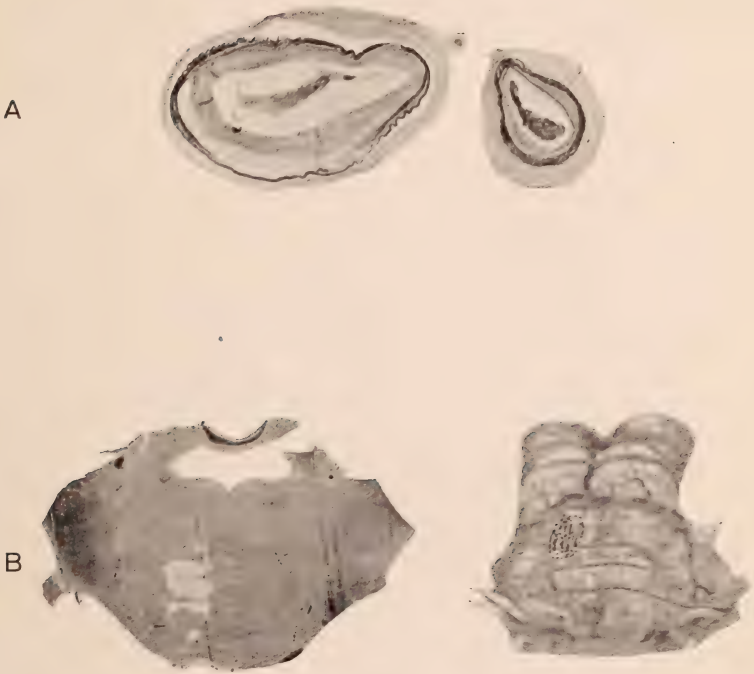


Fig. 2

- A) CASE 1 (W. M.) Microphotograph of the right middle cerebral artery and the branch supplying the area of softening.
- B) CASE 2 (T. R.) Photograph of the pons through the area of softening, and photograph of the mid-brain and pons to show the site of the softening.

weakness of left leg, after several weeks no weakness of left arm; during the following 9 years episodes of weakness with exacerbation of limp; 1906, onset of classical general paralysis; rapid deterioration.

April 13, 1907, exacerbation of weakness of left leg; April 14, attack of unconsciousness, coma; death on April 16.

Pathological Anatomy. Cortex, typical changes of general paralysis; softening in the right side of the pons (vid. Fig. 2-B.); endarteritis obliterans.

Remarks on Case 2. The general course of the disorder in this case was essentially parallel to that of Case 1 (W. M.); the duration of the interval between the first hemiplegic attack and the insidious onset of the general paralysis was almost the same. The seat of the focal lesion was only discovered after a thorough examination of the brain, and the case shows the necessity of an examination being complete before any deductions as to clinico-anatomical correlation are drawn. The vascular change responsible for the focal softening was endarteritis obliterans (Heubner) so that here too the clinical picture of the case was modified by a syphilitic lesion.

An interesting clinical detail was the comparatively slight involvement of the arm with a lesion in the region shown in the accompanying photograph.

CASE 3 (p. 68). J. L. W., born in 1863, right-handed; alcoholic; 1898, chancre with treatment of six months; August, 1901, diplopia, improving under potassium iodide; April, 1902, paralysis of left side, coming on in 24 hours, without loss of consciousness; improvement under treatment; November, 1902, paralysis of left side with clonic convulsions, and with inability to speak, without loss of consciousness; improvement under treatment; 1902-1905, occasional headache; autumn, 1905, inefficient; October, 1905, progressive weakness of the left leg, loss of memory; January, 1906, twice fell without loss of consciousness; January-August, 1906, vigorous antisymphilitic treatment without improvement; mental symptoms; February, 1906, four convulsions; August 14, series of convulsions, with special involvement of the right side, with residual weakness of right arm and

marked paraphasia; diminished sensibility over right face and arm; no hemianopia but statement of less distinct vision in the right visual field; occasional twitching of right arm; death August 26, 1906.

Pathological Anatomy. Cortex, typical changes of general paralysis; focus of softening, of uncertain age, involving part of R. F. 1, of R. F. 2, and of upper fourth of R. A. C.; old focus of softening in the head of the left caudate nucleus and in the anterior fourth of the left putamen; focus of softening in the marrow of the left occipital lobe; foci of softening in the pons; small cortical wedges of atrophy of the ectodermal elements; endarteritis obliterans.

Remarks on Case 3. In this case the considerations, which have been discussed in regard to the two previous cases, assume still greater prominence; in the former cases the clinical history is divided into two very distinct periods, the symptomatology of each of which has a certain independence. In the earlier period the symptomatology is merely that of focal softening on the basis of vascular disease; in the later period the clinical picture is that of a classical general paralysis, with certain additional features referable to the already existing gross lesion, viz., the local distribution and character of the attacks. The relation of the process in the second period to that of the first period is not suggested immediately by the clinical history, but by general considerations on the etiology and nature of the two processes; apart from these considerations the supposition of two quite independent processes would be adequate. In Case 3, on the contrary, the clinical history does not divide itself into such distinct periods, but seems to present the evolution of one process, an evolution in which no definite line of demarcation can be drawn; the picture of brain syphilis passes insidiously and without any long intervening period of incubation into that of general paralysis. As sufficient evidence for this, it may be stated that the patient until one month before death was diagnosed and treated as a case of brain syphilis by a most competent neurologist.

The whole early course of the disorder, its early incidence

after the initial infection, the presence of certain symptoms, on which stress is frequently and justly laid as aids in the differentiation of brain syphilis from general paralysis, viz., diplopia, headache, good insight, absence of grandiose ideas, seemed to indicate brain syphilis; the euphoria shown by the patient is nothing unusual in the latter disorder, while the memory defect, in its setting of a certain mild confusion and difficulty of orientation, could not be considered as pathognomonic of general paralysis. At the beginning, therefore, the process appears to have been that of brain syphilis, as evidenced by the close relation to the initial infection, by the symptomatology, by the pathological evidence of focal lesions on a vascular basis; while at the end the process was undoubtedly that of general paralysis, as evidenced by the typical histopathological changes in the cortex.

The limits of our knowledge of the development of general paralysis are brought into clear relief by this case. We have not at the present day clinical criteria which enable us to say at what exact stage in the individual case the process is no longer merely a syphilitic one and that another and more serious process has begun to develop; when the latter process has developed to a certain extent, the clinical picture may leave us in no doubt, but we must clearly recognize the absence of any *clinical* criterion, which will give an answer as unequivocal as the only existing reliable criterion, viz., the histopathological picture. Even the Wassermann reaction leaves us in doubt, although it is one additional factor which has to be considered in the weighing of the facts in the individual case; the serologist, to whom the clinician has turned for some test of infallible accuracy, gives the clinician back the problem with the additional task of valuating the serological data.

This case, along with the following one, a case of brain syphilis, illustrates the great necessity of careful clinical differentiation, and the danger of using in any research on general paralysis or brain syphilis cases where histopathological examination is excluded, unless the limits of our clinical criteria are fully appreciated.

CASE 4 (p. 72). W. C., born in 1858; chancre 1891; very alcoholic, with long standing delusions of jealousy and of poison; summer, 1900, squint of several months duration; September, 1900, attack of dysarthria and staggering, with gradual improvement of speech; September, 1901, weakness of right leg, speech difficulty; residual weakness of right leg; 1901-1903, several attacks of weakness of the right side with involvement of speech; 1903, transitory weakness of left arm with inability to speak; July, 1905, attack of unconsciousness, followed by stuporous condition and delirium of several weeks duration; August, 1905, on admission, euphoric dementia; October 25, left-sided ptosis of four weeks duration; right-sided weakness, sign of Babinski and ankle clonus on both sides; left internal ophthalmoplegia, defective speech and writing, lymphocytosis of the cerebro-spinal fluid, optic discs normal; April 30, 1906, general convulsion after which the right arm was held rather rigid; death on May 3, 1906.

Pathological Anatomy. Cortex, preservation of the general architectonic, no diffuse plasma-cell infiltrate; general pial cloudiness, frontal atrophy, ventricular granulations; gummata, one in left centrum ovale, (vid. Fig. 3), another in the right parieto-occipital fissure; syphilitic meningitis, of varying grade, with slight extension into the cortex; old softening, of vascular origin, in the right internal capsule and thalamus, another in the left side of the hind brain involving the pyramidal fibres; endarteritis obliterans.

Remarks on Case 4. The difficulty of diagnosing clinically between cerebral syphilis and general paralysis is again strikingly shown by this case. The difficulty did not arise from extrinsic causes, such as a defective anamnesis, etc., nor from the fact that the clinical examination was not directed towards specific issues. The examination endeavored to define as clearly as possible the nature of the disorder of speech and writing, the type of memory defect, the degree of want of realization of the condition shown by the patient's mood and his plans for the future. The neurological incidents were in type very similar to those of the previous case; the left-sided ptosis and com-

FOCAL SYMPTOMS IN GENERAL PARALYSIS

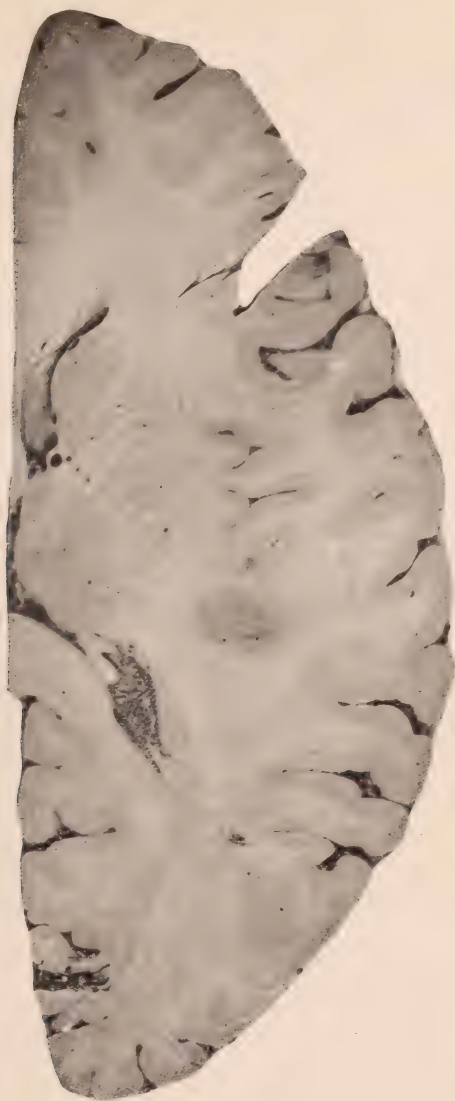


Fig. 3

CASE 4 (W. C.) Photograph showing gumma in the left centrum ovale. The connection with the pia of the insula is not shown in this section.

N. B. The photograph is taken of the under surface of the section.

plete fixity of the left pupil were the signs which most distinctly indicated a syphilitic process.

Even if the Wassermann reaction had at this date been introduced into psychiatric procedure, it is doubtful whether it would have thrown much light on the case; a negative reaction would have been of considerable weight, a positive reaction would have left the problem unchanged.

CASE 5 (p. 76). M. D. R., born in 1847; some venereal infection about 1870; about 1893 onset of memory defect; in 1902-'3 memory defect was pronounced, progressive; July, 1905, dazed episode, general convulsion; on admission (July 12, 1905) mild general mental reduction, poor memory and retention, poor orientation, no definite euphoria nor boastfulness; knee-jerks absent, pupillary reaction good, speech indistinct, not tremulous, writing tremulous and almost illegible, arteriosclerosis; September 3, 1905, two attacks of twitching most marked on the left side, without loss of consciousness; October 2, two general convulsions, followed by quasi-delirious behavior; November 5, general convulsion; November 21, series of convulsions of mild nature; November 22, twitching of arms; lymphocytosis of cerebrospinal fluid; during the following months occasional convulsions; March 23, 1906, left-sided attack, with weakness and ataxia of left arm, diminution of sensibility over the whole left side, left-sided hemianopia passing into complete blindness, duration of symptoms two days; April 3, during examination sudden pain in head, "black in part of the eyes;" April 4, right-sided hemianopia, confused semi-delirious remarks; clear after a few days; May 19, sudden blindness, eyes turned to the right, mild delirium; May 20, persistence of blindness in the right field; May 31, transitory loss of vision in the left field (*i. e.* complete blindness from double hemianopia), weakness of the left side (leg, arm), anesthesia of the whole left side; June 20, left-sided hemianopia (in addition to already existing right-sided hemianopia), twitching of the left face and arm; disappearance of the left-sided hemianopia in two days; July 15, left-sided hemianopia (causing complete blindness), twitching of left hand and face, left-sided

hemianesthesia; August 26, convulsion with transitory weakness of the left arm; September 10, attack of left-sided hemianopia with rigidity and twitching of the left arm; after three days clear vision in left field; October 12, temporary elimination of the left visual field, weakness of the left arm, impairment of sensibility on the whole left side; October 24, general convulsions beginning with twitching on the right side, leaving transitory impairment of sensibility in the left hand, and left-sided hemianopia; November 9, transitory left-sided hemianopia, twitching of the left face and platysma, left-sided anesthesia; after three days no residual; December 3, left-sided hemianopia, hemianesthesia, weakness of the hand; December 4, 5, series of convulsive attacks; December 5, left leg rigid, left-sided anesthesia, sign of Babinski on the right side; December 6, 7, continuation of twitching; December 7 to December 15, blind; December 31, peculiar movements of left and right arm of different type; January, 1907, mildly delirious, progressive impairment of pupillary reaction to light; March 2, twitching of right hand, arm and leg; March 25, twitching of right face, arm and leg, impaired sensibility on the right side; April, frequent episodes of clonic contractions especially of the right arm; for several weeks before death apparently blind; death on May 7, 1907.

Pathological Anatomy. Cortex, typical changes of general paralysis; in the left occipital lobe a large area of softening, involving the lips of the calcarine fissure (vide Fig. 4, 5); small softening in the left cuneus; atrophy of the right optic tract due to pressure of contiguous thickened vessels; old focus of softening in the left cerebellar lobe; marked atrophy of the medullary substance with occasional lacunae; marked thickening of the basal arteries, with secondary dilatations and tortuosity (vide Fig. 4), complete occlusion of the branch of the left posterior cerebral supplying the occipital focus of softening; slight degeneration of the posterior columns of the cord.

Remarks on Case 5. The patient was a man of 58, of poor physique and slightly defective mental development who was admitted in July, 1905, on account of an epilepti-

FOCAL SYMPTOMS IN GENERAL PARALYSIS

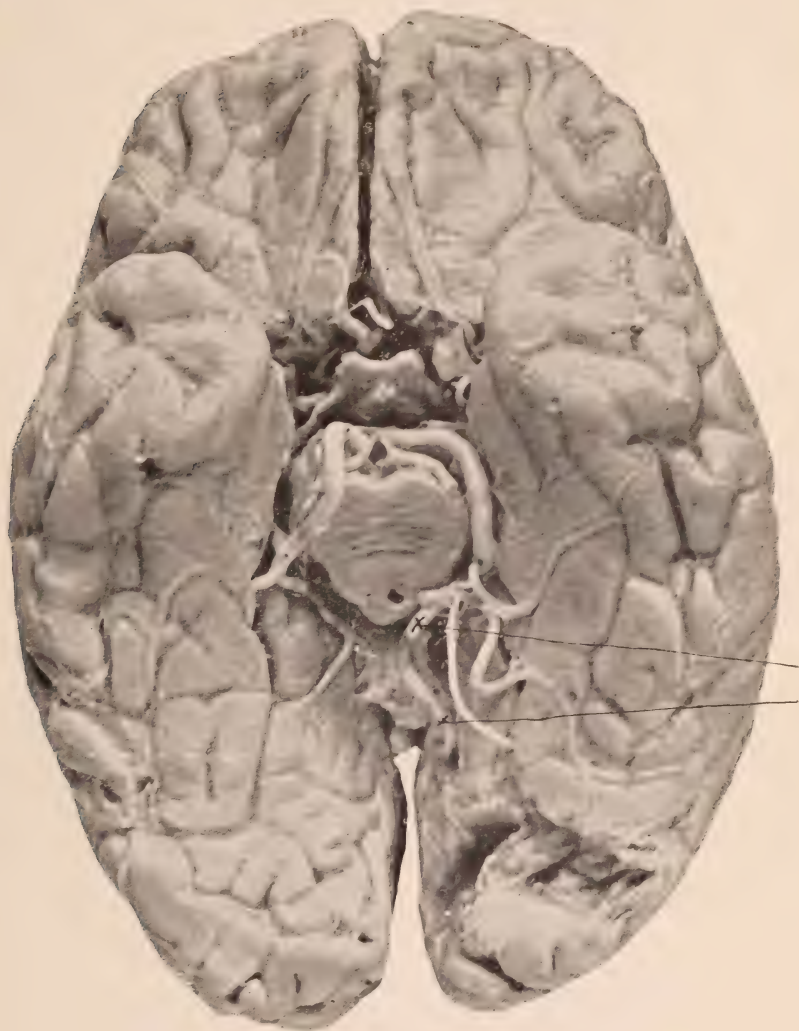
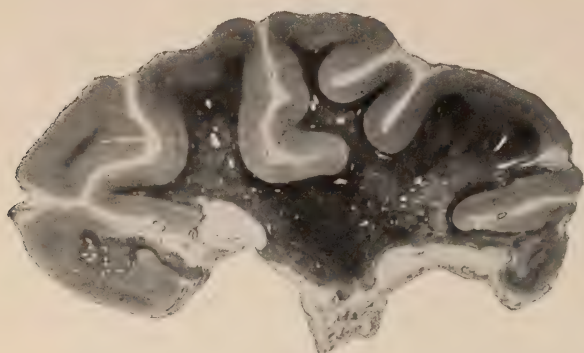


Fig. 4

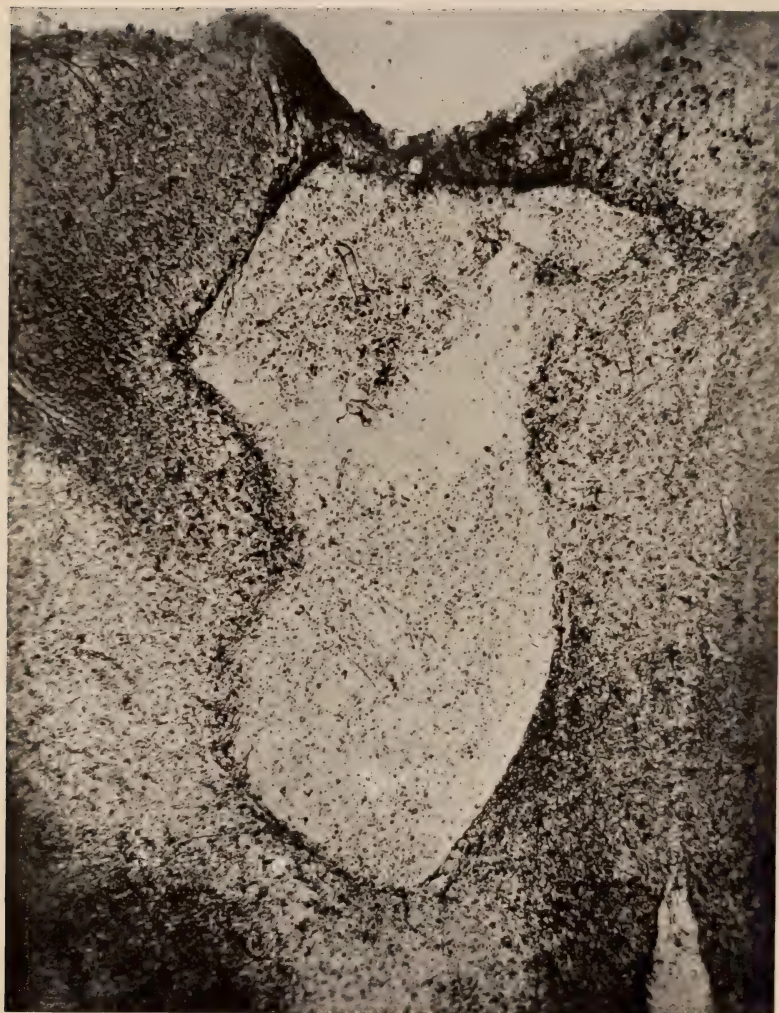
CASE 5 (M. D. R.) Photograph of the base of the brain after removal of the hind-brain. The right posterior cerebral artery has been pulled away from the optic tract, on which there is a well-marked groove. The focus of softening in the left occipital lobe is shown with the much thickened and occluded artery leading to it (calcarine artery).

FOCAL SYMPTOMS IN GENERAL PARALYSIS

A



B



CASE 5 (M. D. R.) A) Photograph of a transverse section of the left occipital lobe showing extensive softening of the mesial aspect. At the right hand side of the section is seen a small cortical softening, magnified in the lower illustration (B). Note the preservation of the superficial layer of the cortex, the complete destruction of the ectodermal elements in the focus, the multitude of glitter cells. The softening is probably over a year old. Contrast this with the focal destruction of Case 13 (Fig. 9) where no glitter cells are present.

Fig. 5

form convulsion; this was his first convulsion. For over fourteen years his general efficiency had been diminishing, his memory especially had deteriorated; during the two years before admission his memory defect had become more accentuated.

Neither previous to admission nor during his stay in the hospital did the patient show any abnormal mental trend; his mental condition was similar to that of simple senile deterioration; he showed poor orientation especially for time, very marked memory defect especially for the recent past, some insight into his condition and fair preservation of his personality; his mood was one of simple good-humor, and he was at times mildly jocose. In connection with various attacks he was mildly delirious, but apart from these episodes his mental condition showed little change in hospital except progressive enfeeblement parallel with the physical decline, and a tendency towards the end to be in a dull hazy condition bordering on a delirium.

His physical condition on admission was that of a rather feeble old man with moderate arteriosclerosis; the knee-jerks were absent. During his residence in the hospital he had a series of localized and general convulsions, and developed a permanent right-sided hemianopia, while during the last weeks of life he was apparently blind.

The knee-jerks were absent but the patient did not present a frank tabetic complex; the pupils even at a late stage of the disorder showed only slightly defective reaction, the sign of Romberg was not present at an early stage, there was no localized sensory defect, no history of shooting pains. The posterior columns of the cord showed slight degeneration.

The patient had numerous convulsions, the severity of which was not uniform; in some the patient lost consciousness, in others he was delirious, in others he was in a confused state bordering on a delirium; the attacks were frequently accompanied by extreme distress and agitation, and sometimes by an agonizing headache. The most typical attacks showed, in addition to these general symp-

toms, the following transitory focal symptoms: (1) left-sided hemianopia, (2) paralytic motor symptoms on the left side, the arm being more affected than the leg, (3) irritative motor symptoms on the left side, with occasional involvement of the right, (4) left-sided anesthesia, the arm being most affected.

Visual disorders were obviously present in the earlier attacks; he was noted as "fumbling along the wall as if *groping* for imaginary objects." In the first attack observed in detail, along with the left-sided weakness there was left-sided hemianopia which during the examination passed into general blindness; there was no residual limitation of the visual field. On a later occasion he complained suddenly of headache, "I am black in part of the eyes" ("vision noire"). Next day he was completely blind in the forenoon; after this attack he had permanent right sided hemianopia. In the various subsequent attacks the patient, in addition to the left-sided motor and sensory symptoms, had transitory left-sided hemianopia causing temporary blindness. The recovery from the left-sided visual defect was usually abrupt, but sometimes there was a transition period in which the patient had some visual perception of objects but was unable to name them.

The motor phenomena were irritative and paralytic. Both the irritative and the paralytic features were much more marked on the left side, and were in several attacks confined to that side. The attacks left no motor residual, but it was noted that the left side of the patient's face was somewhat flatter than the right. After one attack, which involved both sides, the sign of Babinski was permanently present on the right side.

The distribution of the *sensory disorder* varied from attack to attack, and in some the left arm alone was affected.

The combination of permanent right-sided symptoms (hemianopia, sign of Babinski) with left-sided attacks seemed to indicate a definite focus or foci of softening in the left hemisphere, with recurrent disorders, probably circulatory, in the right hemisphere, the visual sphere being

specially affected; it was thought probable that the basilar artery and posterior cerebral arteries presented an advanced degree of arteriosclerosis. The diagnosis of severe progressive arteriosclerotic brain degeneration was made, but in a paper written before the autopsy was made, the author said: "The absence of knee-jerks, sign of Romberg, marked lymphocytosis of the cerebro-spinal fluid, the sluggish, irregular pupils, force one to reserve the diagnosis; for it is not as yet sufficiently established what weight is to be laid on these signs, individually and collectively, in the clinical differentiation of the organic dementias."

The anatomical examination showed how complex the nature of the disorder actually was; without a satisfactory microscopical examination the case might, even after autopsy, have been considered as merely a case of arteriosclerotic brain degeneration, and not a case of general paralysis, and one more would have been added to the list of cases in the literature, which have done so much to confuse the whole problem of general paralysis.

The vessels, on microscopical examination, showed a very late stage of a girdling endarteritis with very marked degeneration of the thickened coats.

As to the exact meaning of the type of vascular disorder present in this case, a discussion of the point would lead one into very debatable ground and would raise the whole question of the pathology of arteriosclerosis; it is probable that the condition is essentially of syphilitic origin.

The syndrome—hemiplegia, hemianesthesia, hemianopia—if permanent, usually arises on the basis of a softening or hemorrhage, involving the internal capsule and the optic radiation. In Case 7, S. G., where this syndrome was present, the clinical syndrome could be crudely correlated with the extreme severity of the cortical disorder in the one hemisphere; in Case 17, A. H., neither a special localized severity of the cortical process nor a softening nor hemorrhage was demonstrated (the topographical study of the cortex was not sufficiently extensive to justify a final statement on the possibility of correlation in Case 17).

Where the syndrome is of brief duration, as in several of our cases, the supposition of a transitory ischemia, involving the relevant area of the white matter, may be entertained. The centripetal path, however, to the right visual cortex in the present case was vulnerable at another point, viz., where the right posterior cerebral artery pressed upon the optic tract posteriorly and where the internal carotid pressed upon the same tract anteriorly; here the tract had been reduced to a narrow ribbon. It is probable that many of the unusual features in regard to the hemianopic attacks, e. g., the seeing black in front of the eyes, the transition period of hazy vision as the hemianopia cleared up, were to be interpreted as symptoms of pressure on the optic tract.

For the explanation of the transitory motor and sensory symptoms, one is tempted simply to refer to the condition of the vessels; in view, however, of the cases described in our fourth group it is better to admit frankly that the exact mechanism of the attacks is obscure, and that we are not as yet in a condition to attribute its due weight to each of the two prominent elements demonstrable, the gross changes in the vessels and the morbid process in the cortex.

Review of Group i. The vessel changes in the four cases of general paralysis, included in this group, consisted either of a well-marked endarteritis obliterans, or of a less typical condition, complicated by considerable degeneration, which probably represented a late stage of the same disorder. The foci of softening produced by these vessel changes were situated in the cortex, the sub-cortex, the brain-marrow, the basal nuclei, the hind-brain. In addition to these typical softenings the thickened vessels had in one case at least caused direct damage by pressure.

The permanent focal symptoms in the first three cases consisted of hemiplegia, in the fourth case (*i. e.*, Case 5) of hemianopia.

The onset of the hemiplegia in these three cases was without loss of consciousness; it began in each case with a feeling of numbness or tingling in the hand, and it reached its maximum not abruptly, but within a period of 24 hours.

In none of the three cases was there any residual weakness of the face; in Case 2 the leg alone showed residual weakness. No residual sensory defect could be demonstrated in any of these cases.

In Case 2 no epileptiform attacks were observed, and the patient died after an apoplectiform attack. In the other three cases epileptiform convulsions, frequently of Jacksonian type, occurred. The epileptiform attacks were evidently somewhat modified by the existing gross lesions, e. g. in Case 1 twitching of the left (*i. e.* hemiplegic) side was observed as the first and also as the last feature of some of the attacks. The final episode in Case 3 was of the type more frequently met with in Group ii, that is a comparatively long period (two weeks) during which sporadic twitching occurred, with considerable variations in the mental level.

The symptomatology of Case 5 has already been discussed in some detail in the remarks on that case; no typical apoplectiform attacks were observed, but the attacks presented rather a mixture of the features of the apoplectiform attacks of the first three cases with the features of the epileptiform attacks of other cases (e. g. the attack on March 23, 1906). Such a mixture of features is probably the clinical expression of the complexity of the anatomical changes, where at the same time the vascular system is seriously impaired while the cortex is the seat of a progressive disorder of another type.

While the apoplectiform attacks in this case were to be interpreted in the light of the vascular disorders with the consequent focal softenings, Case 9 (J. D.) is a sufficient warning against making a diagnosis of "thrombosis of the internal capsule", or elsewhere, merely on the basis of an apoplectiform attack. In Case 9, where an apoplectiform attack left a residual hemiplegia, no focus of softening was discovered, and the vessels showed only moderate diffuse thickening.

The general bearing of Group i on the whole question of the relation of syphilis to general paralysis has been sufficiently discussed in the remarks on the individual cases.

GROUP II. *General paralysis with focal symptoms on the basis of localized severity of the general paralysis process:*

Case 6.	S. G.
Case 7.	R. F.
Case 8.	A. S.
Case 9.	J. D.
Case 10.	G. W.
Case 11.	M. T.

CASE 6 (p. 88). S. G., born in 1862; temperate; no definite history of syphilis; 1896, shooting pains, especially in the left leg; 1900, occasional numbness and weakness of the left leg; insidious change in disposition, progressive inefficiency; 1905, definite mental symptoms; June, 1906, on admission, classical general paralysis with tabes; June 4, 1907, general convulsion, followed by left-sided twitching of one week's duration, with residual left-sided weakness, impairment of sensibility, hemianopia; August 12, twitching of the left side of three days duration, at first confined to the leg and arm, then involving the thorax and neck, but not the face; later an occasional general convulsion; November 4, 1907, twitching of left face, arm, leg, with loss of consciousness, duration 1-½ minute; November 6, left-sided convulsion with increase of weakness of left side; November 30, 1907, onset of a series of general convulsions, with continuous left-sided twitching lasting one week; 1908, occasional attack; November 5, 1909, right-sided twitching with loss of consciousness; death on November 6, 1909.

Pathological Anatomy. Marked reduction of the whole right hemisphere, due to pronounced atrophy and shriveling of the convolutions of all parts (vide Fig. 6); the upper third of the anterior central convolution and the base of the temporal lobe were somewhat less affected than the other areas; cortex, typical changes of general paralysis, more marked on the right than on the left side, the cortex on the right side being much narrower; no focal softening; slight thickening of the basal vessels, the right middle cerebral a little thicker than the left; degeneration of the posterior columns of the cord, and of the left crossed

FOCAL SYMPTOMS IN GENERAL PARALYSIS

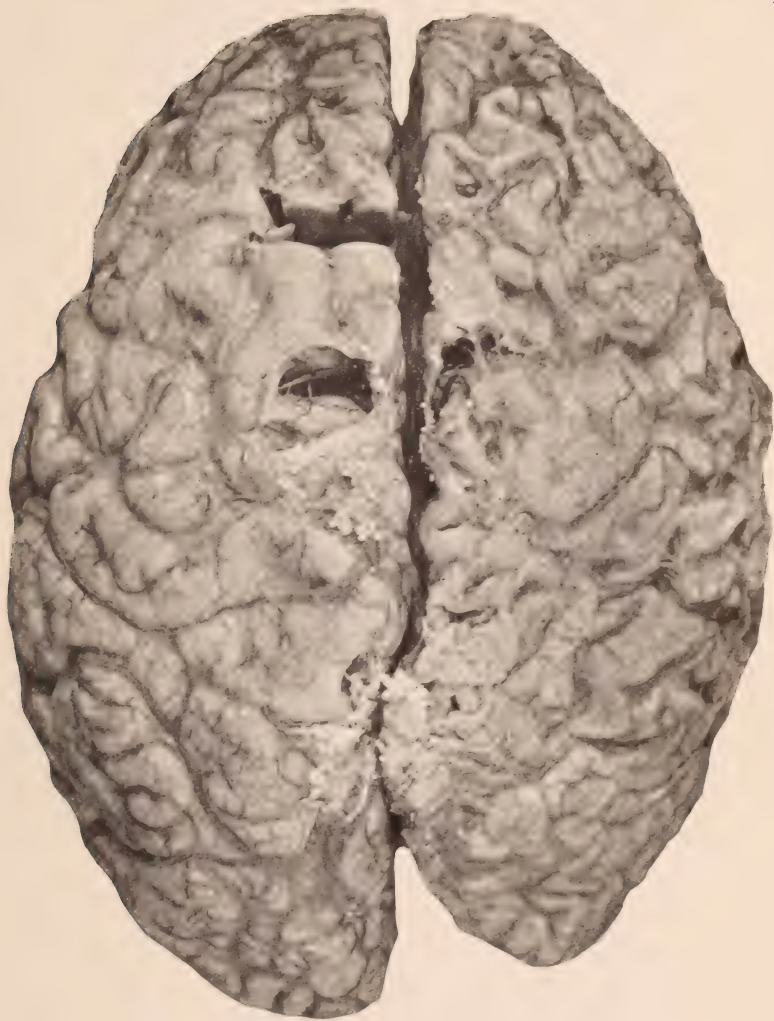


Fig. 6

CASE 6 (S. G.) Photograph of the brain showing much more pronounced atrophy of the right than of the left hemisphere.

pyramidal tract and right direct pyramidal tract (Weigert); a section stained with Sudan III showed numerous fat droplets in the left pyramidal tract, none in the right; fibrino-purulent exudate in the pia of the cord.

Remarks on Case 6. In this case the focal motor symptoms consisted of weakness and twitching of the whole left side, with terminal contracture of the left hand.

The attacks of the patient were of two kinds: (1) General convulsions of short duration with loss of consciousness not followed by focal symptoms. (2) Twitchings limited to the left side or to part of the left side of short (November 4, 1-½ minute) or long duration, sometimes spreading over a week with irregular intermissions, frequently without loss of consciousness. At other periods there was a mixture of (1) and (2) (June, 1907).

Even after attacks of long duration no gross reduction in the patient's mental condition was noted, but the weakness of the left side was more pronounced (August 29, 1907).

The distribution and nature of the symptoms were not such as could be attributed to disorders in any special vascular area, but appeared to indicate a degenerative and irritative process over an extended cortical area; the various elements in the symptom-picture were of different severity, thus the hemianopia was permanent while the motor symptoms consisted of weakness of variable degree, of twitching of variable distribution, and of terminal contracture of limited extent. This fact would indicate that in the cortex the morbid process was not necessarily always of the same severity over the whole hemisphere.

In view of the severity of the symptoms it was rather striking that this case, in contrast with that of the patient A. S. (Case 8), ran a rather long course; the patient lived for over three years in the hospital, he was for more than four years before death definitely insane, he had begun to show mental symptoms at least nine years before his death. The comparatively striking brightness of the patient even at a late period was no doubt to be explained by the fact that it was not the dominant hemisphere which was so severely affected.

The course of the case consisted of an uninterrupted although slow decline, in contrast with that descent by steps which is frequently attributed to such cases.

The symptoms in this case, therefore, appear to be directly related to the special distribution and severity of the process of general paralysis itself, and not to gross vascular disorders such as those which have been described in the first group of cases. The persistence of the symptoms in this case corresponds with the severity of the pathological changes in the cortex, which were so striking that the right hemisphere showed to the naked eye a much greater reduction than the left hemisphere. In the case A. S. the symptoms were far from showing the same persistence, and on naked eye examination no difference in the hemispheres of the two sides was made out; careful measurements were required to show that the cortex on the suspected side was in certain areas distinctly narrower than that of the corresponding area on the other side. The correlation of the symptoms in the case A. S. with focal severity of the cortical process is strengthened by comparison with the present case S. G. where both the clinical and the anatomo-pathological picture were so much more definite.

The active nature of the changes in the cortex in Case 6 was confirmed by the Sudan III picture of the sections of the cord, showing evidence of recent degeneration in the pyramidal fibers on the left side.

CASE 7 (p. 92). R. F., born in 1870, right-handed; alcoholic; syphilis (date?); 1903, inefficient; 1904, speech defect; October, 1904, apoplectiform attack preceded by inability to speak (no details known); April 3, 1905, wandering episode, transitory reduction of speech (no details known); October, 1905, convulsions; June, 1906, transitory weakness of right hand and face; October 23, 1906, without loss of consciousness, attack of weakness of left hand (? leg, ? face), defective reaction to pin-pricks over the whole left side, apparent left-sided hemianopia; the hemianopic symptoms were permanent, the motor and sensory disorder was not demonstrated on October 26, but was present at least in part on later examinations (October 31, November 23, Febru-

ary 7, February 26, March 8); progressive contracture; March 13, 1907, transitory episode with head and eyes turned to the left; April 5, 1907, death.

Pathological Anatomy. Diffuse brain atrophy, more marked in the right hemisphere; the right visual area and base of the right temporal lobe posteriorly showed a special degree of atrophy; this condition was not accounted for by any special thickening of the right posterior cerebral artery; the sagittal marrow of the right occipital lobe was somewhat softened; cortex, typical changes of general paralysis, almost more pronounced in the left than in the right paracentral lobule; moderate thickening of the basal vessels; the cord showed no marked degeneration but merely a slight thinning of the pyramidal tracts; endarteritis obliterans of spinal vessels.

Remarks on Case 7. In this case we meet with the same problem presented by Case 6 and Case 9, viz., focal symptoms referable to the visual and motor systems without any gross lesion on the basis of a vascular disorder. The right hemisphere appeared to the naked eye somewhat smaller than the left and weighed 440 gr., while the left weighed 472 gr.; the weights were taken after the brain had been in formalin for some time. The thickening of the pia (which was very pronounced) and the cortical atrophy (most marked over the anterior two-thirds of the brain) were more marked over the right than over the left hemisphere. Here, as in the previous case, there is no obvious explanation for the focal symptoms except the cortical process itself with its areas of special severity, the reason for this distribution not being clear. The fact that the severity of the cortical process on both sides was severe, may be taken in conjunction with the clinical observation that during the last two months of his life the patient showed very marked contracture on both sides, lying flexed in an intra-uterine position; the question of contracture is, however, an extremely complicated one. The actual mechanism of the symptoms is not easy to understand, for microscopically the motor area on the one side showed little difference from that on the other: it must be admitted that differences

between the two sides may be present at an earlier stage of the disorder, but be obliterated as the process advances on both sides.

The danger of crude anatomo-clinical correlation may be seen on comparing Case 6 (S. G.) and Case 7 (R. F.); the brain of the former showed a much more pronounced degree of atrophy than that of the latter, although R. F. for several months previous to his death had lived a purely vegetative existence with pronounced contracture, while S. G. was rather bright and responsive until the terminal attack.

The reason for the quick decline of R. F. and the comparatively slow progress of the disorder in S. G., where the brain atrophy finally reached a much more extreme degree, is quite obscure; it is important to remember that in S. G. it was the right hemisphere which showed the most marked atrophy, while the leading hemisphere was much less seriously damaged.

On the whole the course of the disorder in R. F. was one of progressive decline, but after the attack in October his mental level appeared to undergo considerable reduction.

CASE 8 (p. 94). A. S., born in 1878, right-handed; alcoholic; syphilis (?1902); 1904, insidious onset of general paralysis; January, 1906, wandering episode, transitory complete inability to talk, leaving a residual aphasic disorder which gradually improved; no hemiplegic symptoms; well marked physical signs of general paralysis; during the summer no progression of symptoms.

October 2, 1906, apoplectiform attack with weakness of the right face and arm, twitching of the right face and platysma; no reaction to pin-pricks over the right arm and leg, apparent right-sided hemianopia, marked reduction of speech with gradual improvement; persistence of twitching and weakness of the right face after disappearance of weakness of the right arm; mental level reduced after the attack.

October 28, 1906, ill-defined attack without loss of consciousness, with very marked reduction of speech and residual peculiarity of intonation, increased weakness of the right face; no special weakness of the limbs; mental level further reduced.

General slight improvement in speech; bed-ridden; progressive deterioration; after January, 1907, unable to speak.

January 16, 1907, twitching of left face and arm with quasi-purposeful movements of the right arm; January 17, twitching of the right arm and first two fingers of right hand, general tremor of left arm, both sides of face twitching; January 21, apparent left-sided hemianopia of short duration (less than two weeks), again reappearing on two occasions (February 26, for less than nine days; March 16 to 25): during the first week in March apparent right-sided hemianopia; during the last two months of life constant contortions of both sides of the face, peculiar high-pitched yelling, no marked difference between the limbs of the two sides; extreme emaciation.

March 25, 1907, death.

Pathological Anatomy. No difference between the two hemispheres observed macroscopically; cortex, typical changes of general paralysis; cortical atrophy more pronounced on the left than on the right side (A. C., F₃, Calcar.); no focal softening; the basal and cortical vessels were not thickened, except for an occasional spot. The cord, stained by Sudan III, showed a few quite insignificant droplets in the right pyramidal tract, still fewer in the left.

Remarks on Case 8. In this case the speech disorder was not merely the usual articulatory disorder of general paralysis but in addition was of the nature of an aphasia. In the episode previous to admission (January, 1906) the patient was unable to speak, and on admission was paraphasic; this condition steadily improved. In the second attack along with right-sided motor symptoms there was inability to talk (except "yes," "no") lasting for over a week, followed by improvement but leaving a considerable residual reduction in spoken speech as compared with the condition of the patient previous to the second attack; there was also agraphia; he understood spoken speech probably up to the limit set by the general disorder.

In the third attack there was increased difficulty in speaking with change of pitch as a residual (cf. *aphasie*

d'intonation of Brissaud), and probably further general mental reduction; then insidious progress of the speech difficulty so that for the last month at least the patient did not speak. It was natural therefore to look for some explanation of the above symptoms in that region, the destruction of which is apt to cause motor aphasia; there had been some paraphasia, but the main disorder was of the expressive side of the speech mechanism.

The motor symptoms had throughout been right-sided, either weakness or twitching, but not involving the whole right side.

On October 2 there was weakness of the right arm with twitching of the right face and platysma; for over a week there was weakness or twitching of the right face, platysma, and right arm. The weakness of the face persisted longer than that of the arm.

During the last four months of life, therefore, there were symptoms localized in the right face and arm, and more especially in the face, without permanent paralysis of either face or arm. These symptoms pointed to pathological changes involving the cortical centre for the face and arm or the paths leading from these centres, that for the face being more specially indicated. The coexistence of the special speech disorder with those symptoms seemed to confirm this localization. The sensory symptoms were rather ill-defined and the defects could only be demonstrated by crude methods (reaction to pin-pricks); the defect was liable to be limited to one limb and no frank hemianesthesia was ever present, although on October 2 the patient did not react to pin-pricks over the arm and leg (? partly owing to motor involvement); when he was clearer and again tested, the impairment was limited to the right arm (reaction to pin-pricks).

During the right-sided attack in October the eyes looked to the left and the patient did not wink when feinted at from the right, while he did so when feinted at from the left; this apparent hemianopia persisted for several days. Later (January 21) there was an apparent left-sided hemianopia which persisted for several days and which made

transitory reappearances (reappeared on February 26 and in March); on one occasion there was an apparent transitory right-sided hemianopia. The exact mechanism of this hemianopic disorder was not clear; the patient was not in a condition to give information as to the vision and it was merely deduced from the failure to wink in reaction to stimuli from one side. The limitation of spontaneous movement to one side might be due to an abnormal condition of the frontal cortex of one or the other side and both sides were affected, as was obvious from the twitching. As to the failure to wink in reaction to fainting, the exact weight to be laid upon this symptom is not certain.

In the patient M. D. R. (Case 5) the permanent hemianopia with transitory attacks of complete blindness enabled one to make the correct diagnosis of a disorder in the vascular supply of the occipital lobes, but the hemianopic disorder could be definitely determined by the patient's own statements and was not merely deduced from certain defect symptoms during a condition of general disturbance. In the present case the situation is different; the defect symptoms were much more equivocal and transitory, so that they could not be held to point conclusively to the special involvement of a definite cortical area.

On careful consideration of the convolutions of both hemispheres no difference could be observed macroscopically between the suspected areas on the one side and the corresponding areas on the other (F 3, A. C. Occ.)

Careful measurements, however, of the thickness of the cortex in corresponding areas of the two hemispheres (F 3, Occ. Lobe) were made by Dr. Dunlap and the cortex in these areas was found to be somewhat narrower on the left side than on the right. No explanation was found in the condition of the vessels for the focal symptoms, nor did the nature of the symptoms suggest that they could be explained along the lines of vascular distribution.

The case ran a very rapid course with symptoms pointing specially to active changes in the cortex (twitching) rather than to gross focal destruction with defect symptoms; both sides were obviously implicated but clinically the

symptoms pointed to the greater cortical involvement of the left side, while microscopically the only evidence for this was the slightly more pronounced atrophy.

It is difficult to interpret the attack on October 2, with hemiplegia, hemianesthesia, hemianopia; a complete syndrome of this nature of sudden onset, if permanent, is usually of vascular origin and of capsular localization, the internal capsule and the optic radiation at the same time being involved. Here, however, the internal capsule and optic radiation showed no special change, and the vessels supplying this area were in satisfactory condition.

Another explanation would be the simultaneous affection of the motor and the visual cortex, determined by an exacerbation of the general paralytic process, possibly extending over the hemisphere although only yielding symptoms from those areas which are not silent, as in the case S. G. (Case 6).

In cases like S. G., where the severity of the cortical process is very pronounced over the whole hemisphere, there may be permanently present the same syndrome, and the evolution of the cortical process manifests itself not so much by apoplectiform attacks as by attacks of twitching which are frequently not accompanied by loss of consciousness, and which may spread over a considerable period of time.

CASE 9 (p. 102). J. D., female, born in 1874, right-handed; no history of syphilis; one miscarriage, one still-birth; July 17, 1908, sudden onset of weakness of left side without loss of consciousness, followed by delirium; slight residual hemiplegia; progressive mental deterioration; January, 1909, delirious episode in hospital; February, 1909, on admission, residuals of left-sided hemiplegia with symptoms of sensory aphasia, general mental reduction; April 15, weakness and twitching of right face, arm and leg, right-sided hemianopia and hemianesthesia; the right-sided symptoms were of short duration; May 20, left-sided hemianopia with reaction to hallucinations in the right field; May 21, general twitching; persistence of left-sided hemianopia; no gross sensory disorder, death on August 23, 1909.

Pathological Anatomy. Diffuse brain atrophy, specially

severe in the right occipital lobe, which showed small withered convolutions on the external and under surface of the tip of the lobe, the right calcarine fissure being much shorter than the left; the right posterior cerebral artery was a trifle smaller than the left; no difference between the central convolutions was observed grossly; cortex, typical changes of general paralysis; no focal softening; moderate diffuse thickening of the basal vessels; in the left crus cerebri in the outer third and extending along the periphery of the middle third were extremely numerous fat droplets (Sudan III), the right crus cerebri showed no fat; in the hind-brain there were fewer pyramidal fibers on the right side than on the left; just above the anterior perforated spot external to the optic tract was a smooth-walled lacuna which seemed to separate the peripheral fibers of the tract without injuring them.

Remarks on Case 9. In this case, as in the two previous cases, a special degree of atrophy of one cortical area (visual area) had manifested itself in the clinical picture; the slight thickening of the vessel supplying the area was quite inadequate to explain the atrophy. The clinical picture was complex; the left-sided weakness was not accompanied by any gross sensory disorder. The diagnosis of thrombosis in the internal capsule had been made in another hospital; no capsular nor hind-brain lesion was present. Although the anterior central convolution on the right side was not obviously more affected than that on the left, the loss of pyramidal fibers in the right side of the hind-brain indicated the greater affection of the right motor region; it is possible that accurate measurements might have given more direct evidence of this fact. Similarly the most striking evidence of the special involvement of the left temporal lobe, which the symptoms of sensory aphasia had indicated, was derived from the study of the secondary degenerations in the brain stem, where the outer third of the left crus presented a very intense reaction to Sudan III. Thus the clinical picture of symptoms of sensory aphasia in a right-handed woman was explained by the complex pathological picture.

As to the clinical course of the disorder it may be noted that this was characterized by a very rapid and uninterrupted decline, rather than by any special descent by steps.

CASE 10 (p. 106). G. W., born in 1869, chancre in 1892 (?); Spring, 1905, onset of marked tremor of right hand; February, 1907, fell down steps, was unconscious, lost his speech for several days (diagnosis "cerebral syphilis-general paralysis"); later defective speech, ideas of infidelity, memory defect, headache, diplopia, retention of urine, weakness of the legs; on admission, April, 1908, slight weakness of *right* arm and leg, slight ptosis of the *left* eyelid, slight weakness of the *left* side of the face, marked intention tremor of the right arm, nystagmus; the left pupil reacted less than the right; marked memory defect; ideas of infidelity. Progressive decline, euphoria, loss of depressive ideas, occasional convulsion; terminal convulsions most marked on the right side; death on August 9, 1909.

Pathological Anatomy. A generally atrophic brain with special atrophy of the left parietal lobe and the lower third of the posterior central gyrus (vide Fig. 7 A); left temporal convolutions somewhat smaller than the right; cortex, typical changes of general paralysis; in the left parietal lobe the nerve cells had completely disappeared in places; cerebral vessels soft, with only trifling changes.

Remarks on Case 10. In this case the clinical symptoms, affection of the left third nerve with weakness and tremor of the right side (Benedikt syndrome), pointed to a lesion in the region of the red nucleus. The cortex was thoroughly studied and presented an extremely typical picture of general paralysis; the localized severity of the process in the parietal lobe could not be explained on the ground of vascular changes.

In his mental condition, pronounced euphoria without megalomaniac ideas, the patient resembled very much Case 3 (J. L. W.) and like him had been diagnosed cerebral syphilis previous to admission.

FOCAL SYMPTOMS IN GENERAL PARALYSIS

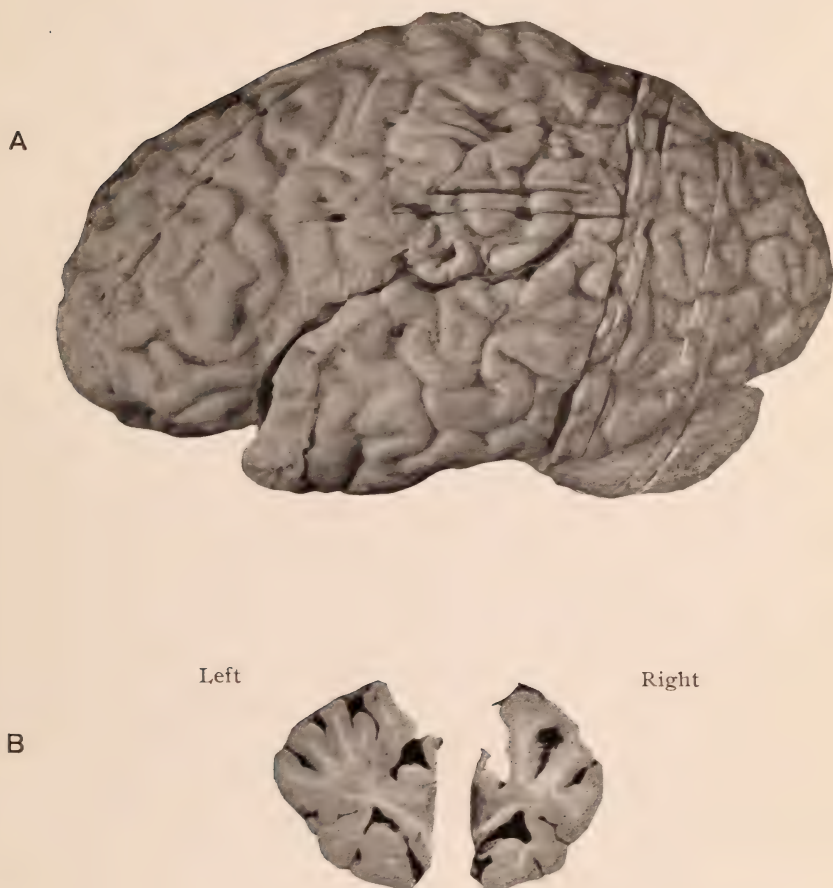


Fig. 7

- A) CASE 10 (G. W.) Photograph of the left hemisphere, showing pronounced atrophy of the left parietal lobe and first temporal convolution.
- B) CASE 11 (M. T.) Photograph of corresponding slices from the left and right temporal lobe respectively, showing pronounced diffuse atrophy of the right temporal lobe.

CASE 11 (p. 109). M. T., born in 1868, right-handed; syphilis; December, 1906, cough, frontal headache, hypnagogic visual hallucinations; April, 1907, twitching of left arm for several days, weakness of and feeling of heat in left leg; no residual weakness; Summer, 1907, short attacks of twitching of left hand, with little balls of light dancing in front of his eyes; twice saw objects colored; on admission (June 24, 1907) mild euphoria, memory defect, lack of insight; deep reflexes slightly more active on the left side; no focal attacks in hospital (June to August, 1907); after discharge occasional attacks of twitching of left hand and leg without unconsciousness; little progression of mental symptoms; August 18, 1909, twitching of left arm without loss of consciousness; impairment of sensibility over left hand, shoulder, face; slight residual weakness of left hand-grip, left leg slightly stiffer than right; death on November 5, 1909.

Pathological Anatomy. Small atrophic brain; the right hemisphere was especially affected, weighed over 40 grammes less than the left; the frontal convolutions, the temporal lobe, and the parietal region were more atrophic on the right side than on the left (vide Fig. 7 B); on the other hand the left anterior central convolution seemed more atrophic than the right, but the right paracentral lobule was more atrophic than the left; cortex, typical changes of general paralysis; basal vessels showed slight diffuse thickening; no focal softening.

Remarks on Case 11. In this patient the prominent focal symptoms consisted in transitory affection of the left hand, or of the left hand and leg, the disorder usually consisting in twitching associated with weakness; the right side of the brain was more atrophic than the left. It is impossible to be content with the crude correlation of the right-sided severity of the atrophy with the left-sided symptoms, for the special area indicated by the clinical symptoms, viz.: the right anterior central, was apparently less affected than the corresponding area on the other side. The attacks were of the type which is so familiar in cases of localized severity of the general paralysis process; but, although

cases like S. G. (Case 6) seem to present a simple problem with easy correlation, cases like the present one and like M. H. (Case 14) show how far we are from understanding the mechanism of these focal symptoms.

Review of Group ii. The clinical histories and regional distribution of the process in these five cases were sufficiently varied to indicate the difficulty of finding some general explanation for the atypical features of this group of general paralysis. The process was not specially localized in the motor and sensory projection cortical areas in contrast with the usual prefrontal distribution of the process; the areas affected varied a great deal and not obviously along the lines of the special systems of the brain. In some cases specially localized severity of the process was well marked in the usual prefrontal area as well as in the unusual area (e. g. M. T. Case 11). The course of the disorder as being a descent by steps rather than a progressive decline has been emphasized by Lissauer and Alzheimer; considerable reduction is apt to follow each attack. Case 8 was the only one of the five cases in which this course was observed; in the other four cases the course consisted essentially of a progressive decline, although in Case 7 considerable reduction followed one attack.

The well known tendency of the same area to be affected in each successive attack was seen in Cases 6, 8, 10; in Cases 7 and 9 this tendency was not so striking. Case 8 did not present such clean-cut permanent focal symptoms after the attacks as the other four cases.

In two cases (Cases 7, 8) the insidious onset of general deterioration had been noted before the occurrence of the focal attacks.

In this group as in the first group there occurred a variety of attacks, apoplectiform, epileptiform, and epileptiform with Jacksonian features.

Apoplectiform attacks occurred as the earliest symptom in Cases 7 (R. F.), 9 (J. D.), 10 (G. W.). In the first attack of Case 7 the diagnosis of *epilepsy* had been made on his admission to a general hospital, and of *acute alcoholism* on his discharge. In the first attack of Case 9 the diagnosis of *thrombosis of the internal capsule* had been made;

no focus of softening was found on anatomical examination. In the first attack of Case 10 the patient was diagnosed "*Cerebral syphilis-general paralysis*". These facts are sufficient evidence of the difficulties presented by these cases in the early stages.

In Case 6 (S. G.) the history was not sufficiently definite to warrant a statement as to the nature of the early episode, in which there was weakness of the left leg.

In only three of the six cases were general epileptiform convulsions observed (Case 6, S. G.; Case 7, A. S.; Case 10, G. W.).

In five of the cases (Cases 6, 8, 9, 10, 11) there were attacks of which a prominent feature was localized twitching, extending over a greater or less period, with or without loss of consciousness, in relation to or independent of general convulsions, leaving (e. g. Case 6, S. G.) or not leaving (e. g. Case 8, A. S.) definite residual weakness.

It may be noted that the patient (Case 7, R. F.) who did not show any indication of this localized twitching presented the most extreme degree of contracture of all the patients, and died in the intra-uterine position.

In all the five patients, who presented this localized twitching, the tendency of the twitching to affect the same regions in each succeeding attack was very striking; this feature was less marked in Case 9 than in Cases 6, 8, 10.

The pathological anatomy of this group presents numerous interesting problems, but a discussion of the latter would involve too many hypothetical considerations to come within the scope of this communication.

GROUP III. *General paralysis with focal symptoms associated with trauma.*

Case 12. F. S.

Case 13. P. D.

CASE 12 (p. 112). F. S., born in 1855; gonorrhea admitted, syphilis denied; 1875 (approx.), severe trauma, transitory hemiplegia, permanent anosmia with impairment of taste and hearing; change of disposition; 1896 (approx.), epileptiform convulsions; 1896 to 1908, occasional epilepti-

form convulsions with numerous minor attacks; 1906, indifferent towards loss of work, mild mental deterioration, impairment of memory; on admission (August, 1909), mild mental reduction with considerable insight, no expansiveness; anosmia, impairment of sense of taste, defective hearing on the right side; knee-jerks active, speech and writing defective, tremor, lymphocytosis and positive Wassermann reaction of the cerebro-spinal fluid; September 14, 1909, transitory attack of confusion; progressive decline; November 15, 1910, apoplecticiform attack, sign of Babinski on both sides; November 19, 1910, death.

Pathological Anatomy. The right cerebral hemisphere appeared slightly smaller than the left; an old traumatic lesion had involved the olfactory surface of both frontal lobes (vide Fig. 8) so that neither olfactory lobe and only the posterior half of the left olfactory tract could be found; there was a gutter-like lesion on R. T.₃ about 4 cm. long, and a smaller lesion on R. T.₂; cortex, typical changes of general paralysis; no focal softening; slight thickening of the cerebral vessels.

Remarks on Case 12. The point of special clinical interest in this case was the date of onset of the convulsions; the first convulsion occurred twenty years after the trauma, and ten years before the insidious onset of general paralysis. The interpretation of this symptom, therefore, was difficult; was it to be considered as a late result of the trauma, which had earlier caused the development of an epileptic disposition, or was it to be considered as the earliest expression of the cortical changes of general paralysis? The exact rôle played by the two factors could not be estimated.

The early diagnosis of the case was difficult but as the case progressed the clinical picture was quite classical.

CASE 13 (p. 114). P. D., right-handed, born in 1859; no history of syphilis; February, 1905, after severe trauma unconscious for four days; no focal symptoms; post-traumatic irritability and headache; early in 1906 forgetful, unable to recall names, "peculiar in his talk"; March 21, 1906, epileptiform convulsions with right-sided hemiplegia; residual paraphasia without weakness of the right side. May,

FOCAL SYMPTOMS IN GENERAL PARALYSIS

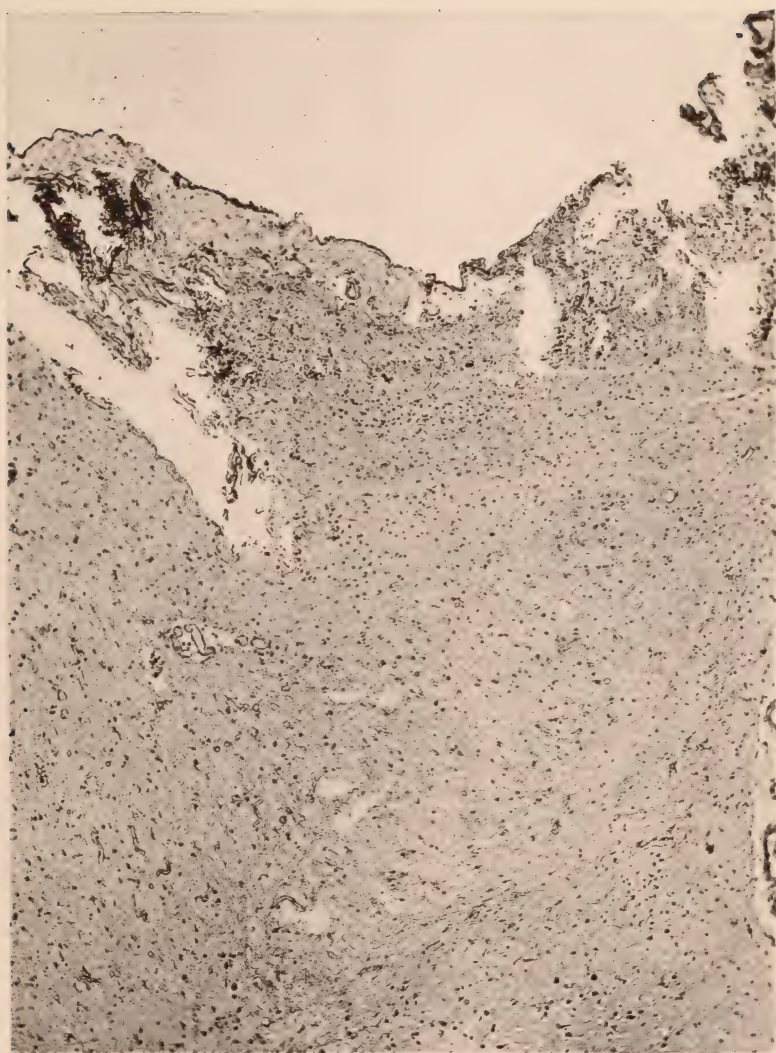


Fig. 8

CASE 12 (F. S.) Microphotograph of the left gyrus rectus, with old traumatic lesion. The tissue shows a somewhat loose reticulum, sparse neuroglia nuclei, disappearance of nerve-cells. The surface is somewhat ragged owing to the difficulty of removing the brain without tearing.

Compare this old lesion with that of Case 13 (P. D.) shown in Fig. 10, 11.

FOCAL SYMPTOMS IN GENERAL PARALYSIS

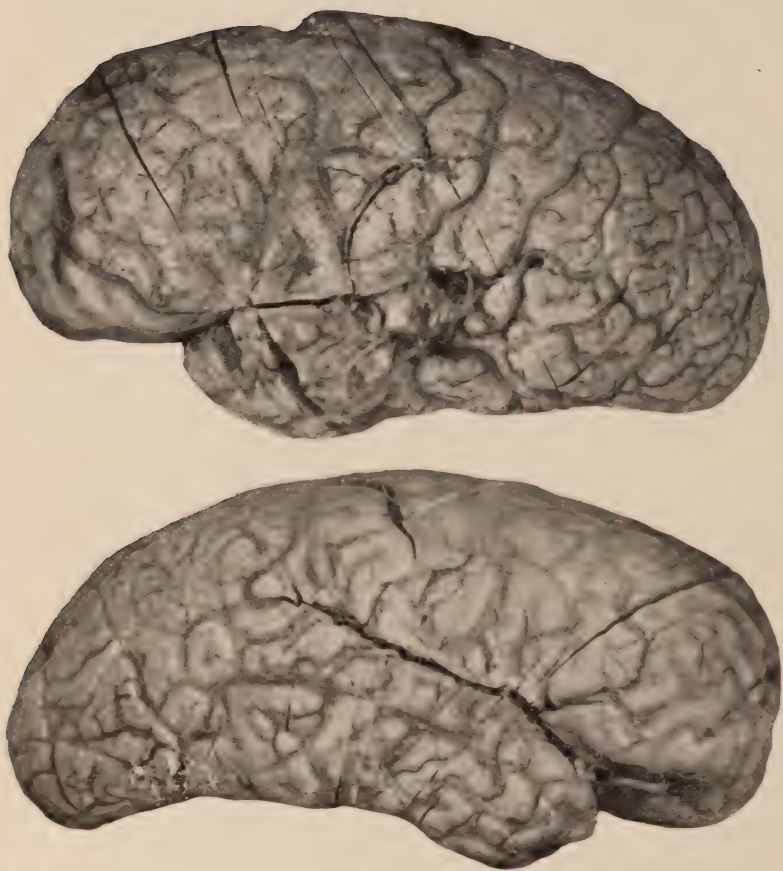


Fig. 9

CASE 13 (P. D.) Photographs of the right and left hemispheres, showing the cortical softening in the left temporal region; the cortex here was rusty, depressed, soft.

1906, fracture of the base of skull, delirium; euphoric dementia with sensory aphasia; no weakness of face nor limbs, no gross sensory defect, K. J. absent, A. R. pupils. July 10, right-sided convulsions with transitory inability to talk, weakness and impaired sensibility of right face and arm, with spasticity of the arm. October, aphasic symptoms still more pronounced, weakness of right side of face, difficulty of innervating right hand; extremely limited utterances with an occasional appropriate phrase. After November, no utterances except "yes" and an oath; contracture of fingers of right hand without weakness or gross disorder of pain sense; later convulsions which specially affected the right side; in Spring progressive contracture of right leg; May 3, 1907, death.

Pathological Anatomy. Medium-sized, somewhat atrophic brain, with the atrophy and pial thickening more marked over the anterior two-thirds; a brownish area of cortical softening involved the anterior half of the left temporal lobe exclusive of the temporal tip (Fig. 9); T_1 , T_2 , T_3 , were all affected; the lesion consisted of a superficial softening and extremely slight depression without break in the pia; transverse temporal convolutions a little wrinkled, but firm and not discolored; slight diffuse thickening of the basal vessels; no focal softening apart from the above lesion.

Remarks on Case 13. In this case neither the clinical nor the anatomical picture is so easy to interpret as in the preceding case. The patient had a severe trauma, followed by unconsciousness, several months before the onset of the mental symptoms, and of a certain peculiarity in his talk. It is extremely improbable that the later focal symptoms had any relation to this first trauma, for in that case one would expect the maximum of focal disturbance to have occurred immediately after the trauma, with gradual restitution partial or complete; in this case the sequence of events was different, for the first traumatic episode was characterized by no focal symptoms. One year later, two months before the fracture of the base of the skull, the patient had a general convulsion with residual paraphasia.

It seems probable that this attack, with its residual symptoms, arose on the same basis as similar episodes in general paralysis with localized severity of the paralytic process.

Two months later the fracture of the skull led to further interference with the speech mechanism, and this disorder became progressively worse until spoken speech was reduced to a minimum. The sequence of events concerning the left motor area consisted in early attacks of weakness with later progressive contracture, the face and hand being more consistently affected than the leg.

The histological picture was somewhat difficult to interpret; the softened area (Fig. 10, 11) did not correspond in its structure to the softened specially atrophic convolutions of case 10 (G. W.) where the nerve cells had dropped out altogether in places, but where there had been a massive proliferation of the neuroglia (vid. Fig. 12 from another case). In the present case the softened area presented in places an open mesh-work, with only moderate proliferation of the neuroglia in the neighborhood. No gitter-cells were demonstrated, and this fact would be somewhat unusual in a case of gross destruction of tissue of such recent duration (assuming that the fracture in May, 1906, was the cause of the lesion).

It seems probable, therefore, that the temporal area was especially affected before the trauma in May, 1906, and that, as a locus minoris resistentiae, on the occurrence of the trauma it suffered a further reduction. The histological picture, however, does not give much evidence of the actual paralytic process being specially severe in this region.

The accompanying photographs illustrate the difference between the lesion in this case and that of Case 12; in the latter, however, the lesion had occurred 35 years before death.

Review of Group iii. Little need be said of this group in addition to the remarks on the individual cases. In Case 12 we have to deal with a brain, with unequivocal evidence of an old traumatic lesion, presenting the typical histopathological changes of general paralysis. That the trauma may have had an influence in rendering the brain more susceptible to the causes of general paralysis can not

FOCAL SYMPTOMS IN GENERAL PARALYSIS



Fig. 10

CASE 13 (P. D.) Microphotograph of L. T.₁ showing pronounced cortical atrophy with disappearance of the nerve-cells; the dark strands in the cortex and sub-cortex represent neuroglia masses, frequently in association with vessels.

FOCAL SYMPTOMS IN GENERAL PARALYSIS



Fig. 11

CASE 13 (P. D.) Microphotograph of the lesion in L. T.₁, showing still more pronounced destruction of the cortex. The tissue is composed of an extremely loose glia reticulum with complete disappearance of nerve-cells.

be denied; the post-traumatic change in disposition and the onset of convulsions at least 10 years before the insidious beginning of the mental deterioration were evidence of the great importance of the trauma. The general paralysis, however, presented a classical picture in which there was nothing to indicate an unusual origin; the neurological symptoms due to the trauma did not essentially modify the general paralysis. Similarly in the brain the lesions of the one process existed side by side with those of the other, without the nature of the general pathological changes having been specially modified. Such a case, therefore, in no way justifies the use of the term "traumatic general paralysis", which unfortunately is occasionally seen in the literature.

In the second case the exact nature of the focal lesion has been described and the probable relation to the trauma discussed. It was probable that the severity of the destruction in this area which expressed itself in the clinical picture, was to be explained by the trauma. The trauma had modified the symptomatology, and possibly hastened the course of the general paralysis.

Even in cases like this the use of the careless term "traumatic general paralysis" has to be deprecated; we have to deal with a disorder presenting a characteristic symptomatology and pathological anatomy, and the fact that complicating factors may modify both the clinical and pathological picture does not alter the conception of the disease nor warrant us in giving to these factors the etiological importance implied in the term "traumatic general paralysis"; one might with equal cause talk of an "alcoholic tuberculosis". That trauma may precipitate the onset of general paralysis and hasten its course is recognized; legal decisions in Germany have awarded compensation on this ground, although it was not maintained that the disease in itself was of traumatic origin (Gerlach⁵).

The pathological findings in Case 13 would support this point of view, for while there was no doubt as to the nature of the fundamental disorder the influence of the trauma could be also clearly demonstrated.

GROUP IV. *General paralysis with focal symptoms without adequate explanation, such as vascular lesions or localized severity of the cortical disorder.*

- Case 14. M. H.
- Case 15. W. S.
- Case 16. M. L.
- Case 17. A. H.
- Case 18. N. F. T.
- Case 19. W. B.

CASE 14 (p. 118). M. H., female, right-handed, born in 1857; no history of syphilis; 1902-3, slight change in disposition; July 10, 1903, transitory cramp and stiffness of right hand and leg (? face); August 31, transitory cramp of right arm and hand, followed by delirium; on admission September 5, 1903, mild euphoric dementia, slight weakness of the right hand grip, right triceps reflex a little more active than the left, no weakness of face nor leg observed, no gross sensory disorder, defective speech and writing; defective pupillary reaction to light; lymphocytosis of the cerebro-spinal fluid (October 25, 1903).

September 27, attack of weakness of right lower face and arm, without weakness of leg, sense of pain impaired over the right arm, deep reflexes more active on the right side than on the left; eyes turned to the right, no winking on feinting from the right, nystagmus; inability to speak, no evidence of understanding spoken commands; during the following week steady return to previous level through a period of jargonaphasia and paraphasia with perseveration, with peculiar movements of the right hand; April 22, 1904, attack of weakness of the right hand, delirium; on readmission April 27, 1904, right face slightly flattened, no weakness of arm nor leg, right triceps reflex more active than the left; May 9, two attacks, the first characterized by pallor, inability to talk, impaired sensibility on the right side, the second by purposeless movements of the right arm, and of the head and eyes, with impaired sensibility over the right side, nystagmus, and residual paraphasia; after June, attacks of dulness with apparent helplessness of the right hand, progressive deterioration; June 27, transitory want of

FOCAL SYMPTOMS IN GENERAL PARALYSIS

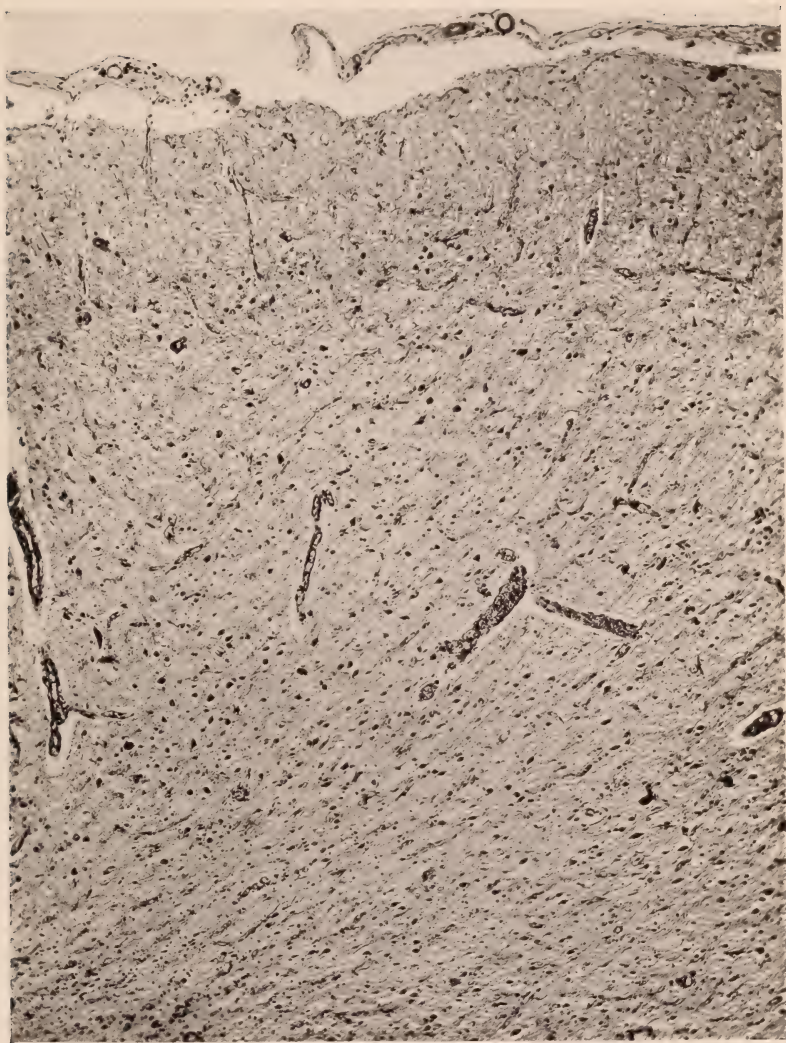


Fig. 12

Microphotograph of cortex in general paralysis, showing a very severe and advanced stage of disorder: to be compared with vascular lesion (Fig. 5); traumatic lesion (Fig. 8); and atypical traumatic lesion (Fig. 11).

utilization of right arm; June 28, two attacks of twitching especially involving the right face and arm, without increased residual weakness; August 5, transitory attack of dulness with weakness of the right arm; October 9, attack of dulness with accentuation of the speech defect, and reference to her right hand; December 16, after period of drowsiness and reduced talkativeness, transitory anarthria, inability to use right hand, with residual paraphasia and preseveration which persisted; during 1905 further deterioration without change in the neurological status, slight flattening of the right face, no gross weakness of the right arm, right elbow-jerk stronger than the left, right hand usually held on chest, slight scraping of right foot on walking; no further attacks observed. Death on April 3, 1906.

Pathological Anatomy. General cortical atrophy, most marked in the prefrontal region; to the naked eye the left central convolutions appeared slightly more atrophic than the right; cortex, typical changes of general paralysis; on large sections taken through the arm area and F 2 the histopathological changes on the left side were not more pronounced than on the right side; basal vessels thin, unusually small; some subcortical vessels showed narrowing of lumina with colloidal changes.

Remarks on Case 14. In this case the symptoms were of exquisitely focal nature during the long period of three years, but, although the patient had extremely numerous attacks localized in the right hand, or right hand and face, with involvement of the speech mechanism, there was no permanent gross reduction of the strength of the right arm even during the terminal stage of the disorder. In this respect the case may be compared with the previous case (P. D.) where similarly, even in the most advanced stage of the disorder, no weakness of the right hand was demonstrable, while contracture was progressive and severe. In both cases there was a defect of utilization of the limb which was not due to a crude loss of motor power.

A case where focal symptoms have been so pure seems to be specially promising for purposes of histopathological

research; the attacks, however, though frequent and exquisitely localized, left such trifling permanent focal residuals that the negative results of the microscopical examination are not surprising. In the light of such a case we must try to think in less crude terms of the mechanism of the symptoms; it is difficult, however, to give any precision to our conception of these episodes.

Very thorough topographical studies of the cortex in this case were undertaken by Dr. Dunlap; he found no structural differences which might account for the onesided symptoms; the two hemispheres showed apparently equal involvement (except that the left central convolutions appeared to the naked eye more atrophic than the right); even in the relative count of neuroglia nuclei and in the number of Betz cells no difference between the two sides was observed. The large section on the left side was, however, taken from a level towards the upper limit of the region indicated by the clinical symptoms.

CASE 15 (p. 124). W. S., born in 1855, right-handed; very alcoholic; ? syphilis; 1904, defective speech, peculiar behavior, onset of frequent attacks of inability to talk, with weakness of the right hand; 1905, pronounced mental dilapidation, classical general paralysis; December 17, 1905, attack of weakness (no detailed examination), paraphasia for several days; January, 1906, speech extremely defective; February, transitory general improvement; death September 18, 1906.

Pathological Anatomy. Cortical atrophy, most pronounced in prefrontal region; cortex, typical changes of general paralysis slightly more marked in the left hemisphere than in the right; no focal softening; slight diffuse thickening of the basal vessels which were small.

Remarks on Case 15. The only attack with focal symptoms observed in the hospital consisted of a paraphasic period of a few days duration; numerous transitory attacks with weakness of the right hand and inability to speak were said to have occurred previous to admission. No focal softening on the basis of vascular disorder was present, no special localized atrophy of the brain was observed, and

the slight difference in the microscopical sections taken from the two hemispheres could not be used as an adequate explanation of the clinical symptoms.

CASE 16 (p. 126). M. L., born in 1872, right-handed; alcoholic; syphilis of unknown date; 1900, delirious episode after drinking; 1904, insidious onset of queer behavior at work; September, 1904, sudden dysarthria, followed by improvement; winter, 1904-05, deterioration of conduct; March, 1905, sudden dragging of right leg, awkwardness of right hand, paraphasia of one hour's duration; December 17, transitory weakness of the right arm and leg; January 9, 1906, transitory numbness of legs and of left wrist; January 14, 1906, transitory weakness of left hand; January 25, transitory stiffness of the left arm; March 20, transitory left-sided weakness of ten minutes duration; March 21, transitory numbness and weakness of right hand; November 17, transitory weakness of right face, arm, leg; December 3, episode of weakness; progressive enfeeblement; April 15, 1907, death.

Pathological Anatomy. Moderate degree of convolutional atrophy; no focal softenings; cortex, typical changes of general paralysis; no localized severity of the cortical changes demonstrated, but there was a striking neuroglia reaction in the white matter of some convolutions; cerebral vessels in good condition.

Remarks on Case 16. In this case numerous details of histopathological interest were observed, but no localized changes which one could correlate with the clinical symptoms; in view of the transitory nature and variable distribution of the symptoms this was to be expected.

CASE 17 (p. 130). A. H., born in 1885; alcoholic; syphilis (at 28?); 1905 precordial pain, sleepless, restless, unable to work; progressive deterioration; on admission well-marked signs of general paralysis, knee-jerks absent. April 1, 1907, attack of left-sided weakness without loss of consciousness; apparent left-sided hemianopia; ?sensibility. April 4, transitory ataxia of right arm; persistence of left-sided weakness until death, April 14, 1907.

Pathological Anatomy. Slight convolutional atrophy, no gross evidence of localized special severity of the process; cortex, typical changes of general paralysis; no focal softening; cerebral vessels in good condition.

Remarks on Case 17. In this case the focal symptoms were of extremely short duration, persisting during the last two weeks of life; no vascular disorder was present to account for the symptoms; in view of the brief duration of the symptoms it was not expected that there would be anatomical evidence of severe cortical changes.

CASE 18 (p. 131). N. F. T., born in 1860; alcoholic; no history of syphilis; delirium tremens in 1900; onset of mental symptoms unascertained; workhouse in 1904; January, 1905, on admission classical general paralysis; September 1, 1906, left-sided convulsions followed by left-sided weakness and impaired sensibility; the weakness was of several hours' duration, the sensory disorder lasted more than a day; September 18, sudden weakness of right side, inability to speak; no residual after a few days; October 4, weakness of right hand (?face, leg), lasting one week, tremor and twitching of extremities; decubitus; November 9, 1906, death.

Pathological Anatomy. Acute meningitis, grafted on a chronic meningo-encephalitis, secondary to decubitus and purulent bronchitis; cortex, typical changes of general paralysis; no focal softening, no gross evidence of localized severity of the cortical process; basal vessels slightly atheromatous.

Remarks on Case 18. The case presented considerable interest from the histopathological point of view; the acute infective process remained confined to the meninges, and interfered comparatively little with the layer of the pia next the cortex, which presented the exudate characteristic of general paralysis.

The absence of gross focal changes and of evidence of localized severity of the cortical process of general paralysis is not surprising in view of the transitory and inconstant nature of the clinical symptoms.

CASE 19 (p. 133). W. B., born in 1860, congenitally left-handed; temperate; syphilis (? date); August, 1904, episode of forgetfulness and difficulty in writing; onset of classical general paralysis; November 22, 1905, sudden onset of weakness of left arm (face? leg?) with paraphasia and inability to write his name; later, doubtful hemianopia, inability to recognize objects with the left hand (? sensibility), difficulty in carrying out definite movements with the left hand, peculiar attitudes of left hand; duration of left-sided symptoms less than two weeks; July 17, 1906, general convulsions with residual weakness of left face, arm and leg, apparent left-sided hemianopia, speech difficulty; coma; death on July 19, 1906.

Pathological Anatomy. No gross lesion of the brain; well marked atrophy of the convolutions especially in the frontal region; cortex, typical changes of general paralysis, the perivascular infiltrate being as well marked in the central as in the frontal convolutions; cerebral vessels were thin, without evidence of atheroma; in the cord both crossed pyramidal tracts showed considerable fatty degeneration (Sudan iii) indicating progressive myelin decay; there was little difference on the two sides; the posterior columns showed the lesions of early tabes.

Remarks on Case 19. This case ran an unusually rapid course and death occurred after a series of convulsions, with special involvement of the left side; in the first attack a left-sided syndrome was also present—weakness and astereognosis of the left hand, doubtful hemianopia, paraphasia. The paraphasia formed part of the left-sided syndrome, as the patient was congenitally left-handed, and only right-handed by education.

The cortical changes in the motor cortex were as pronounced as in the frontal region, which is unusual; the infiltrate appeared to be about equally prominent in the left and right paracentral lobule. In a Weigert preparation both the crossed pyramidal tracts showed a very marked loss of nerve-fibres, but it was difficult to say which side was the more affected; in a Sudan iii preparation both the crossed pyramidal tracts showed considerable fatty degen-

eration, indicating a progressive process of myelin decay; there was little difference on the two sides. There was thus no microscopical evidence that the focal symptoms were in relation to a specially intense destructive process in the right motor cortex.

On the other hand the cerebral vessels were in excellent condition and no focus of softening was present. The mechanism of the attacks, therefore, in this case was quite obscure.

Review of Group iv. The study of the previous cases has already shown that even where the symptomatology promised the possibility of clinico-anatomical correlation, the latter was frequently possible only in a rather restricted sense; in Case 8 (A. S.), where the symptoms pointed to the special involvement of a certain area in the left hemisphere only microscopical measurements detected a difference between that area and the corresponding area on the right hemisphere; in Case 9 (G. D.) recourse was had to the study of the secondary degenerations in order to obtain even a crude correlation.

If the anatomical study frequently yield so little to explain the atypical features of the symptomatology in cases where the attacks have been numerous, severe, consistent in the localization and even with permanent residuals, it is not to be wondered at that, in cases where the attacks are either fewer, less severe, more variable in their localization or without permanent residuals, the study of the pathological anatomy leaves many questions unanswered.

Perhaps the most striking case in this group and in one way the most disappointing one, is Case 14 (M. H.) where, notwithstanding numerous exquisitely focal attacks extending over a period of almost three years, the microscopical examination furnished no clue to the special symptomatology; it is true that the absence of any gross focal residual was one point which made the possibility of definite correlation somewhat problematical.

No group of cases is better suited to emphasize the limits of our present knowledge of general paralysis. It warns us against making too much of the anatomico-clinical corre-

lation in cases where circumscribed lesions are found; we must confess that, even in presence of a circumscribed lesion, our conception of the actual mechanism of the focal symptoms is often a hypothetical construction on the basis of rather inadequate facts.

SUMMARY.

The introduction of the cytological and serological examination of the cerebro-spinal fluid into psychiatric procedure, and the establishment of a satisfactory histopathological criterion of general paralysis have within the last ten years necessitated a much more critical attitude and the adoption of a more adequate standpoint. The histopathological criterion, introduced by Nissl and Alzheimer, may not be final, but its provisional adoption is necessary at present if there is to be a common understanding in the discussion of general paralysis.

In the discussion of the main issues cases of general paralysis reported before 1900 should be used with the greatest reserve, even although the statement is made that the diagnosis was confirmed by post-mortem examination. One must accept with reserve purely clinical observations even if recent, especially if they do not include the examination of the cerebro-spinal fluid; to publish as cases of general paralysis cases of atypical course, whether influenced by therapeutic measures or not, without an adequate examination of the cerebro-spinal fluid, indicates a want of realization of the difficulties of differential diagnosis.

It is sometimes impossible to make a clinical diagnosis between general paralysis and cerebral syphilis; the question, whether in some rare cases the anatomical diagnosis too is impossible, is outside of the scope of this communication; the answer to the question does not affect the value of the histopathological picture as furnishing the only safe provisional criterion, which makes possible a common understanding.

The difficulty of differentiating between general paralysis and cerebral syphilis is insufficiently realized, even by

serious authors whose opinions carry great weight; thus it is probable that many cases are wrongly used in formulating conclusions as to the symptomatology, the course, the serological reactions of general paralysis.

Among the cases of general paralysis presenting atypical features and considerable diagnostic difficulties is the large group of cases of general paralysis with focal symptoms; these cases deserve study, not only from the point of view of differential diagnosis, but also for the light which they throw on the evolution of the disease.

The focal symptoms may be more or less irrelevant to the process of general paralysis, e. g., in general paralysis with traumatic lesions. Trauma may precede the development of the general paralysis and perhaps act as a predisposing cause; on the other hand the trauma may act on a brain already disorganized by general paralysis. In neither case is the term "traumatic general paralysis" justifiable.

The focal symptoms may be more or less irrelevant to the general paralysis but may be due to lesions secondary to vascular changes, frequently of syphilitic origin. These lesions may develop many years before the onset of the general paralysis; they may develop within the prodromal period of the general paralysis; they may develop when the general paralysis is already well established. The consideration of such cases is important in trying to formulate a conception of the evolution of the disorder. Where the development of the vascular lesion accompanies the evolution of the general paralysis, there are two processes side by side and this is one additional fact in favor of the suggestion that general paralysis may not be a unitary process, but that part of the process may be merely a late syphilitic manifestation. This observation must be remembered in connection with certain claims for the benefit of anti-syphilitic treatment in general paralysis.

Vessel changes may cause symptoms not only through their effect on the nutrition, but directly through the pressure of dilated and tortuous vessels on the nervous tissue.

The symptomatology of general paralysis with focal lesions on the basis of vascular changes is frequently not

modified by these changes except through the occurrence of apoplectiform attacks and the presence of residual symptoms.

In a third large group focal symptoms develop in the absence of gross vascular changes, and appear to be in relation to the specially localized severity of the process of general paralysis in certain cortical areas (Lissauer's Atypical General Paralysis). The factors which determine this atypical distribution of the morbid process in the cases reported above were quite obscure; there seemed to be not the slightest tendency towards a systemic distribution. The correlation of the anatomical changes with the symptomatology is frequently rather crude. In attempting to correlate the clinical symptoms with the anatomical findings one is warned by the divergence of the cases to be extremely conservative.

The course of the disorder in the majority of the cases here reported consisted of a progressive decline and was not characterized by that discontinuous reduction, each step of which follows upon an attack, which is sometimes observed in similar cases. Specially characteristic of this group of general paralysis are the epileptiform convulsions of Jacksonian type.

In a fourth group are included cases in which no correlation of focal symptoms with anatomical findings could be made, and which give a further warning against too dogmatic correlation in cases where some lesion happens to be found. We have as yet no adequate data on which to form any valid conception of the mechanism of these attacks.

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APPENDIX.

CLINICAL OBSERVATIONS.

LIST OF CASES.

Group i. General paralysis with focal symptoms on the basis of vascular lesions:

- Case 1 W. M. (p. 63).
- 2 T. R. (p. 66).
- 3 J. L. W. (p. 68).
- 4 W. C. (Brain syphilis; multiple gummata.) (p. 72).
- 5 M. D. R. (p. 76).

Group ii. General paralysis with focal symptoms on the basis of localized severity of the general paralysis process:

- Case 6 S. G. (p. 88).
- 7 R. F. (p. 92).
- 8 A. S. (p. 94).
- 9 J. D. (p. 102).
- 10 G. W. (p. 106).
- 11 M. T. (p. 109).

Group iii. General paralysis with focal symptoms associated with trauma:

- Case 12 F. S. (p. 112).
- 13 P. D. (p. 114).

Group iv. General paralysis with focal symptoms without adequate explanation, such as vascular lesions or localized severity of the cortical disorder:

- Case 14 M. H. (p. 118).
- 15 W. S. (p. 124).
- 16 M. L. (p. 126).
- 17 A. H. (p. 130).
- 18 N. F. T. (p. 131).
- 19 W. B. (p. 133).

CASE 1. W. M., 42, night watchman; admitted to Manhattan State Hospital, December 9, 1903.

Family History. A paternal cousin died in an insane asylum.

Personal History The patient, a right-handed man, was born in Ireland in 1861; after leaving school he worked in hotels, and probably drank freely. At 25 he married a woman of doubtful reputation, who became insane after three years and died in a sanitarium six years after marriage; he indulged in excessive sexual intercourse. No history of syphilitic infection was obtained; as far as known his wife was never pregnant. On the death of his first wife the patient immediately remarried; his second wife was never pregnant.

At the age of 33, in August, 1894, while in a car, his *left* hand "fell asleep;" he commenced to pat it; he then found that his leg was "asleep." As he left the car he stumbled and was considered drunk, but said "I wish I was, it is something worse." He was driven home, but was able to walk with assistance to the house; the hand seemed worse than the leg; he had no trouble with his speech, and was able to swallow quite well. After a short time in bed (duration uncertain) he appeared to be well; his wife noticed no residual weakness of the left leg; so far as she remembered the left arm showed no weakness but occasionally a little tremor when he was excited. Some residual weakness was observed, however, when the patient was treated for osteitis of the right tibia (due to old trauma) in the New York Hospital in February, 1895; "the patient has *almost* recovered control over hand and leg."

In 1902 the patient became restless, sleepless and nervous, and complained of pain in his temple; in Spring, 1903, he became lazy, shirked his work as night watchman, was content to be supported by his wife. In September he began to show absurd behavior; he dressed himself at night, accused his wife of infidelity, chased her with scissors, lit the gas in the middle of the night to keep them from smothering. He was now simple, destroyed his clothes, hid things and could not find them; his speech was at this time impaired.

On admission to Manhattan State Hospital December 9, 1903, the patient was quiet, childish and good-natured; he talked of having thousands in the bank (false). He did not know where he was, mistook those around him for old acquaintances. He said that it was 1893 and could not give the day of the week. On the day after admission he imagined that he had already been about a week in hospital. *Physical Status*: "Hemiplegia. Reflexes slightly exaggerated. Pupils react normally. Speech thick; tongue tremulous."

During 1904 and 1905 the patient showed no marked change. On October 14, 1905, his physical condition was as follows: A well built and well nourished man with a scar and deep depression at the site of the old osteitis of the right tibia. No external evidence of syphilis; the patient admitted some venereal infection, but could give no trustworthy information. *Slight weakness of left arm and leg*; no weakness of the face noted. Movements of the left hand were more hesitating than those of the right hand; the patient walked unsteadily and slightly dragged the left leg, which he said was stiff; the tongue was put out straight. He complained of no sensory disorder, reacted promptly to pin-pricks over face, hands, legs; he said that a touch with a brush was lighter on the right side of the face and right hand than on the left side, but his co-operation in the test was poor. The knee-jerk and the Achilles jerk were more active on the right side than on the left (?difficulty of relaxation); in fact the left Achilles jerk was not elicited (tested in bed). The triceps and wrist reflexes were active on both sides. The plantar reflex was difficult to deter-

mine as the patient kept moving his toes up and down; it appeared to be flexion on both sides. The pupils were practically equal, the left slightly irregular; the right pupil reacted promptly to light and on accommodation, the left not so promptly to light but well on accommodation; both reacted consensually. Hearing was much impaired on the left side. The speech was extremely tremulous, with omission and transposition of syllables. The writing showed the remains of good style, but marked tremor and distortion of words. The internal organs were in satisfactory condition; slight peripheral arteriosclerosis.

On November 18, 1905, the patient had a series of *general convulsions*; when seen by the charge nurse after the first convulsion (5.30 A. M.) the *left arm and leg* were twitching, as well as the eyelids on both sides. When examined at 9 A. M. the limbs on the *left* side were limper than on the right, the head and eyes were turned to the right. The knee-jerk on the left side was diminished, on the right side was active; plantar extension on both sides.

Of special interest was the patient's behavior after these convulsions; during the afternoon and evening he continually made movements with his right hand, putting up the thumb and index to the lips as if feeding himself, moving his lips and continually grinding his teeth. During the whole day he was unconscious; during the night he talked inarticulately; next day (November 19) he repeated some phrases again and again, but showed great difficulty in articulating and swallowing. He continually opened his mouth and rolled his tongue about.

After a few days the patient was in the same condition as before the attack; he showed a well marked euphoric dementia, talked of having a big farm (false), had only a hazy idea of his environment, had no idea of the date. His memory showed glaring defects, and he was quite unable to reconcile his various dates.

On May 7, 1906, the patient had a series of *convulsions*. The first three (8.10 to 8.25 A. M.) were observed by the nurse and were general, the third one beginning with conjugate deviation of the eyes and turning of the head to the left. After this attack the patient was comatose; the eyes deviated to the left; at 8.50 A. M. the *left* hand became slightly closed, and began to show clonic movements, then the left eyelid began to twitch, the eyes twitched to the left, next the left side of the face began to twitch; at this time the patient showed twitching of the left face, arm and abdomen, while the right arm and *both lower extremities* were flaccid; in two minutes the left leg became rigid, and the whole left side showed clonic movements for about two minutes. After this attack the left side of the face appeared weak, the eyes deviated to the left; the sign of Babinski was present on both sides. At 9.15 clonic contractions again began in the left hand, spread to the arm and face, and after six minutes spread to the leg. At 9.25 there was an attack in which the left arm

became rigid, then began to twitch, the face and eyes were turned to the left; the left face and arm continued to twitch for five minutes while the right arm and both legs remained flaccid. The sign of Babinski was elicited on both sides. The patient reacted very slightly to pin-pricks. The convulsions now ceased, the patient breathed deeply with blowing out of the left cheek; the left face was smoothed out, and the angle of the mouth drooped. The patient reacted slightly to sensory stimuli.

During the rest of the day the patient showed similar behavior to that which had followed the convulsions on November 18, 1905. He made continual movements with the right arm, tore his shirt with his right hand and continually put his right hand up to his mouth as if to insert something. He appeared to grip imaginary threads with his teeth, to chew them, pull them out of his mouth and roll them up; he would then rub his neck and again put his fingers up to his lips, appear to chew and draw out imaginary threads; occasionally the left hand co-operated. He did not respond to simple questions nor demands; he did not give a hand-grip.

Next day he was less stuporous and on May 9 he was in the same condition as before the convulsions; he did not realize that anything special had happened.

During the summer there was little change. On November 12 he had a series of convulsions. The first two were general; the third was general for four minutes, then the face was twisted to the left, the left arm and leg twitched more than the right. After this attack the patient returned gradually to his previous condition.

The patient died on November 30, 1906, without further neurological incidents.

CASE 2. T. R., 43, hatter; admitted to Manhattan State Hospital January 10, 1907.

The patient (a right-handed man) was born in New York in 1863, was a healthy child, developed normally, became a hatter and had a small business of his own. He was temperate in the use of alcohol; he told his family physician that when quite a youth he had contracted syphilis; nothing was known as to treatment. He married in 1892; his wife was never pregnant.

First Attack. In February, 1897, the patient had a transitory *weakness of the right hand and difficulty of speech*. When called to dinner he said "I feel awfully funny, my hand feels so numb, my head feels funny" (over occiput). He could not lift a spoon with the *right* hand; his speech was thick. The weakness of the hand did not last more than a day or two; after three days he was in his usual condition.

Second Attack. In November, 1897, he one day leaned to the left side as if about to fall, but was able to continue his work. Next morning his *left arm and leg* were paralyzed, his *speech* was very thick, he cried like a baby. For the next two weeks he talked foolishly, said

that the Astors were coming to steal the spoons, told his wife to send for a certain kind of hat to a Chinese restaurant; he had no ideas of greatness. He seemed to have visual hallucinations, saw acquaintances in the room who were not there; he was oriented, recognized his wife all the time. He gradually regained some power in the left side and in six weeks could walk around with assistance, dragging his left leg; at this time the left arm hung quite powerless, but gradually the weakness of the left arm disappeared until no difference was noticed between the two arms. He continued to walk with a limp.

After the second attack the patient would have little episodes of weakness, which compelled him to lie down for an hour or two; his limp usually was more marked during these spells. On one occasion (1905) he became unconscious for a few minutes.

For two years previous to admission he worried over his condition, and was rather depressed, dreaded the onset of general paralysis. In May, 1906, he walked better than usual, said that his health was coming back and soon began to show a marked grandiose trend; he said he had piles of money, talked of absurd plans. During the two months before admission he would awaken his wife at all hours to discuss his plans; he became irritable with her, and one day assaulted her. Two days later he was in a very apprehensive condition, imagined that he saw robbers entering the store, attacked his wife. He was therefore taken to Bellevue Hospital. There he was restless and excitable, muttered, sang and talked absurdly: "I got brain trouble but God I am getting better, I can run five miles—I showed my wife the revolver, but I didn't mean to shoot her—next time those Italians come into the store I will shoot them in the legs."

On admission to Manhattan State Hospital (January 10, 1907,) the patient was very talkative; when interviewed he answered questions freely, but was occasionally rather irritable and swore. He said that he was "as merry as the canary, happy as the day is long—I feel A No. 1." He talked of having thousands; he was going to be President; he could speak German and Italian (false); "everybody will vote for me from the anarchists down." It was difficult to know whether he had auditory hallucinations; "everybody talks about T. R. (his name)—they say he is the most religious man in the world." (Do you hear voices?) "Yes! I got all the symptoms, but I only drank beer, put it down as I am given to speak of the matter from the platform." He gave the date approximately, knew that he was in Manhattan State Hospital, but was wrong as to its situation; he gave the day of the week as Saturday (Tuesday). He gave a fair outline of his life, but made a few absurd statements and was not quite accurate in his dates.

His memory of the events leading to his admission to the hospital and of the few days in hospital was rather inaccurate. He had a fair store of general information, and did simple sums correctly. He

showed poor retention of the tests given him. He had no insight into his mental impairment.

Physical Status: No anatomical stigmata; no external evidence of syphilis (he admitted infection). *Slight weakness of left leg; no weakness of left arm nor face* made out. Knee-jerks exaggerated, especially on the left side. The gait was both hemiplegic and ataxic, he scraped the left foot along the floor. Sign of Romberg poorly marked. Speech hesitating and tremulous with only occasional distortion of a word ("bigrade" for brigade); tremor of tongue and face, no marked tremor of fingers. There was no gross sensory defect, but he showed only slight reaction to pin-pricks; no difference between the two sides could be made out, but he did not co-operate seriously in the tests.

Pupils equal, slightly irregular, reacted well on accommodation, slightly to light. Marked lymphocytosis of the cerebro-spinal fluid. Internal organs normal; no albuminuria.

After one month in hospital the patient showed further mental deterioration; his orientation was worse, he gave the date as June 28, 1879—"It's all summer—the moon I ordered it stopped, but the sun it is always at 5 o'clock electric light." His talk was very much more dilapidated than on admission. His account of his life contained absurd discrepancies in dates. He now had trillions; "I play with stocks—one hundred million a piece, I bet a hundred thousand dollars on the fight last week." (How do you feel?) "Very well, from my nails to my red head (brown hair) scarlet red hair—intelligent, religious, strong, union-made by God in Christ Mary Magdalen R. (his name) Amen 4 times." On April 13, his wife during her visit called attention to the fact that his face appeared bloated; he also walked in a very lame manner. On April 14, in the forenoon his left leg seemed to give way when he was at exercise and he fell; he was unconscious for a few minutes, but was able to walk back to the ward. After dinner he was very stupid and difficult to arouse; he vomited and was then placed in bed; his temperature was 101°.

On April 15, he continued to be extremely dull, only moaned when addressed; T. 105°—P. 114; the pulse was of low tension, the pulse wave poorly sustained; the breath sounds were loud, accompanied by rhonchi. Sign of Babinski on left side. He was too dull to co-operate in examination of his motor functions. He drew up his legs when being washed. When a light was flashed in his eyes the pupils contracted promptly, but accommodation could not be excluded. On April 16, the pulse and respiration became feebler; the face was pulled to the left side; sign of Babinski was observed on the two sides; no difference of muscle tone on the two sides could be made out. The patient died at midnight.

CASE 3. J. L. W., 43, journalist, right-handed; admitted to Manhattan State Hospital, August 4, 1906.

Family History. The patient stated that his father, a wine mer-

chant, had some mental disorder in advanced life; his mother died of cirrhosis of the liver. No further information could be obtained.

Personal History. The patient gave the following information as to his life. He was born in England in 1863, developed normally, received a good education, practised as a lawyer for a short time, came to America in 1888 and worked as a journalist. Since 1894 he had been on the staff of a prominent New York paper. He drank whiskey to excess.

In 1898 he had a *chancre* with "specific treatment" for several months (the date of infection given by the patient on admission to Manhattan State Hospital in 1906 was the same as that given on admission to the New York Hospital in 1902). In the autumn of 1901 he had *diplopia* which improved after two months treatment with potassium iodide.

On April 21, 1902, at lunch he was unable to use his left arm, a friend had to cut his meat for him; the leg was not affected. Next morning he staggered all over the room, telephoned for a friend who came and dressed him. They drove to a doctor who sent the patient to bed; next day he was taken to the New York Hospital.

The following is the report of the case from the New York Hospital: "Two days before admission noticed tingling in left hand followed by paralysis of left arm and leg in twenty-four hours. *Physical examination:* Unable to draw lips back so as to show teeth; speech slow and thick. Right arm and leg normal; left absolute paralysis. Tactile and temperature sense normal. Micturition involuntary. *Treatment:* Potassium iodide. *Diagnosis:* Cerebral syphilis (left hemiplegia). Discharged May 21, 1902 (four weeks in hospital)." The patient stated that there was at that time slight residual weakness of the left arm and leg.

He was able to continue his work during the following six and one-half months; he then had an attack of which he gave on admission the following account. For ten days he had suffered from severe headache; accordingly he took a large dose of castor oil. During the night he woke up lying on his face; he could not move and was afraid he would suffocate; he managed to knock down a screen and thus attracted attention. He could not speak when the landlady looked in, and for a few hours he remained speechless (he is a right-handed man). The next day he was admitted to the New York Hospital.

Report from the New York Hospital :

"Readmitted November 8, 1902 (six and one-half months after his discharge). *History:* After returning last night dizzy and nauseated, could not rise from bed because of weakness of left leg. Clonic spasm left arm, leg and side of face—four hours duration. Not unconscious; unable to speak. Spastic paralysis left arm and leg. Patellar and plantar reflexes exaggerated. *Treatment:* Sodium iodide. Mercury bichloride per hypo. *Diagnosis:* Cerebral syphilis. Discharged, November 27, 1902, improved."

For the next few years the patient had headache from time to time, and occasionally took medicine. In the autumn of 1905, he lost his position; his work apparently was unsatisfactory. In October, 1905, he noticed that the left leg was becoming weaker; he received intragluteal injections for one month. In January, 1906, he twice (15th, 22d) fell; he had no dizziness, no loss of consciousness, he was able to raise himself and walk home.

On admission to Bellevue Hospital (January 25, 1906) he complained of progressive weakness of the left leg, loss of memory and a sense of insecurity. He remained in Bellevue Hospital until August 4, 1906. Thorough antisyphilitic treatment was adopted; he received as much as 390 grains of potassium iodide daily, and was also treated with hypodermic injections of the mercuric salts. His condition, however, did not improve. From the beginning of his stay in Bellevue Hospital he showed mental symptoms. In January he was irrational, tried to get out of bed and take a stroll along the river; in February he was restless and noisy at times, very talkative, sometimes rambling about imaginary things; on February 26, he had four convulsions; in May he seemed to have hallucinations of hearing, he had spells of wandering, tried to escape; in June he saw objects dimly, was generally muddled.

On admission to Manhattan State Hospital, August 4, 1906, he was childishly happy, affable, loquacious, amused by details, frequently laughing without much provocation. He gave no grounds for his euphoria, said that he had "not a d—d cent," and as to his physical condition he said, "it's a terrible plight—I don't suppose I will ever get well again;" he laughed cheerfully at the position.

He knew where he was, gave the date correctly. He complained spontaneously of his memory being poor, and in giving his history he made several careless mistakes; these, however, he was able to correct; e. g., he said he had been *ten* years in New York, had been working *twelve* years for the New York paper. He had a fair memory of the period since his first attack in 1901, although he said that the interval between the two admissions to the New York Hospital was eighteen months (it was six). Although his retention of a test name and number was good, he was very much confused over the incidents of the immediate past. On the day of admission he thought that he had been two nights in the hospital, and shortly after admission he confused Manhattan State Hospital with Bellevue Hospital, thought that he had been in the former several months, said that the ward physician of the former had vaccinated him at Bellevue Hospital; he was confused as to the time of day; in the evening he said, "I thought it was about eleven o'clock—I remember now I had dinner." He had some difficulty in giving simple facts; the name of the river Hudson, of the Governor of the State, etc., would escape him; the cause of the war with Spain was some difficulty over the tariff.

He did not at all realize the extent of his mental impairment, nor

that his mood was in any way abnormal. He had no morbid ideas; he admitted having had a delirious episode and hallucinations at Bellevue Hospital.

Physical Status. He had the well marked residuals of a left-sided hemiplegia—weakness of the left arm and leg, none of the face; left knee-jerk more exaggerated than the right; ankle clonus and sign of Babinski on the left side. No sensory disorder could be demonstrated. He was clumsy in all his movements; in walking he dragged the left leg, walked with a broad base of support, staggered from side to side. His difficulty in maintaining the erect position was increased on closing the eyes. There was tremor of hands and face, little tremor of tongue. The speech was tremulous and sticking, but without any distortion of the words even in difficult test phrases; the writing was extremely tremulous, the words were crowded up into one corner of the paper, but were correctly written. The pupils were dilated, (5–6 mm), equal, irregular; they reacted well to light and on accommodation, also consensually. No hemianopia. The radial arteries showed no marked thickening. There was no disorder of the internal organs; no albuminuria.

On August 14, the patient had a series of convulsions, the right side twitching more than the left. Next day he answered in a slow and dull manner; said that he was all right.

On August 16, he was still somewhat confused, had considerable difficulty in expressing himself, showed marked perseveration and great difficulty in getting the words he wanted. (What has happened to you?) "Oh! nothing particular—I seen you before, but I don't remember anything startling." (What place is this?) "I know I am in a *part*—a *portion*—an *apartment* belonging to the Western Union—a portion of the features — — — a portion of the apartment which I presume they want." He kept on talking about rooms, "I been letting my — — — rooms — — — I can't pronounce the words — — — I want this word in here" (finger on corner of mouth). He responded correctly to simple commands, e. g., "hold up hands," "show tongue." He was able to name some objects correctly but showed marked perseveration and occasional paraphasia. (Pencil) "Pencil—Harlem—alum." (Watch) "Pencil" (Keys) "Pencil aint it?" (Blanket) He reached for it and fingered it, "I wasn't to feel of it—a piece of silverware." (Quarter) No response. (Silver knife with mother-of-pearl handle). "It looks like a silver coin, I can't see it"—"That's a silver knife—that's the only one I guess right." The *right* arm was weaker than the left. He could not hold the pencil well enough to write. He continually fumbled about his face and chest with his hands in an awkward manner.

On August 17, he was brighter, named objects correctly without any perseveration; he readily understood spoken commands. He was given a letter to read, he held it awkwardly, fumbled and dropped it frequently. He read his own name quite incorrectly; (John L.

W.) "Nother or mother—mother—thodack—don't know which it is—John L. Nothon (What?) Oh! I said it was Thodack." The letter began: "Dear John I am glad to hear you like your new quarters and am sure it will do you much more good than being in Bellevue;" he read, "Dunnell W.—you like your new quarter—New York City very much—very much you—glad—you Bellevue, you like to be in Bellevue."

On August 16 and 17, he said that he saw less distinctly on the right side than on the left.

On August 18, without any convulsion having been observed, the aphasic symptoms were very marked; he was drowsy in the morning, but when interviewed became brighter, tried to talk; he uttered senseless jargon or reiterations, with only an occasional intelligible word. He said spontaneously, "No jection—dab—jection—dejection." (What is your name?) "Dejection (laughs) that's right—dejection—la-jection—the objection—I objection—dejection—now objection— - - - muligal—musge sell—wood—good—sell - - ."

He made few responses to commands, paid little attention to objects shown, gave irrelevant answers: e. g. (what is your name?) "Yes! I'll go." (Q. repeated) "I think—think I'll—I'll—."

The *right arm*, which had been weaker than the left since August 14, was still further affected, lay across the chest and twitched from time to time; he gave no grip with the right hand. He moved both legs readily in bed. The reaction of the pupils was uncertain; hemianopia not demonstrated, co-operation poor. The right face and arm were less sensitive to pin-pricks than the left, but the right leg was more sensitive than the left which was very dull. Knee-jerks, both increased; ankle-clonus and sign of Babinski on the left side.

During the next few days the aphasic symptoms became more pronounced, the patient became duller; he gave no evidence of understanding anything said to him except an occasional response to a command (raise arms! show tongue!); he poured out a stream of gibberish. The pupils reacted very slightly to a strong light. The right arm remained weaker than the left, and showed some twitching.

On August 22, he was brighter, carried out correctly a few spoken commands, named a pencil correctly after several paraphasic attempts; he showed marked perseveration. The improvement was only temporary. On August 25, the patient passed into a semicomatose condition from which he could not be roused; the eyeballs twitched, tended to roll to the right, there was a tendency to turn the face to the right. The limbs were all flexed except the right arm which showed some rigidity and coarse, jerky movements; there was considerable twitching of the lip muscles. On August 26, the patient died.

CASE 4. W. C., 47, admitted to Manhattan State Hospital, August 25, 1905.

Family History. The father was alcoholic. The mother married at 16 and one year later had twins, of whom one was the patient.

Personal History. The patient was born in New York in 1858; he was a neurotic child, had night terrors, frequently walked and talked in his sleep. He was a dull scholar, but a bright comrade. He followed a variety of occupations, became addicted to alcohol, married in 1891, having had a chancre six months previously for which he received only three months treatment. He infected his wife and she had a disastrous series of five pregnancies, but finally a living and healthy child. Even after marriage the patient continued to drink immoderately, indulged in excessive sexual intercourse, tormented his wife with his morbid jealousy and suspicions, so that she left him more than once.

As far back as 1897, he would suspect poison, and imagine that his relatives and associates dealt unfairly with him; his waking suspicions were apparently considerably influenced by dreams. It was with difficulty that he could be brought to realize that he had merely dreamt that an acquaintance and his wife were plotting to kill him. For a considerable number of years he had an easy post as janitor of a large office building. In 1900, during the summer, he was very much exhausted; he sometimes appeared about to faint. Towards the end of the summer squint developed and persisted until November. In *September* he had an attack of dysarthria and staggering, but no special weakness of the limbs of either side was noticed by his wife. He recovered after two months in bed, his speech returning gradually to its normal condition. In *1901*, he again became fatigued, lost appetite, and in *September* he lost the power of his *right* leg "from the knee downwards" (wife's account); he could not stand on that leg. He did not "mow" with the leg in walking, but the leg seemed to dangle from the knee. This weakness did not come on abruptly, but in the course of a few days. His speech was a little affected; the arm showed no special weakness.

For the next two years (1901-1903) he was unable to work; he dragged his right leg when walking, on some days more than on other days; he had two or three sudden attacks during which the right arm would be completely paralyzed for half a day, while the whole right side would be weaker for about a week, and the speech remain affected still longer.

He knew that he was an invalid, but took an optimistic view of recovery.

In *1903*, one day he suddenly fell; when seen one hour later he was a little excited, and able to speak; his *left* arm (his wife insisted that it was his left, and the patient talked of one left-sided attack) became paralyzed, and he could not speak for an hour; at the end of this time he was able to walk up three flights of stairs, and showed no additional difficulty of articulation.

From 1903-1905, he was a night-watchman; although he was becom-

ing gradually weaker he made light of his hemiplegia. He had occasional difficulty in controlling his urine.

About the end of July, 1905, one day he was found unconscious in bed; in half an hour he was found sitting on a chair, he was much excited, tried to speak but could not; at first he made signs, then after a few minutes said "that's better," and became unconscious again. For about a week he was semi-conscious, had no control of his organic reflexes; during the following month he remained at home but was delirious, thought he was on a ship, saw strange men, for a few days he did not recognize his wife.

He refused food and medicine because it was poisoned, and was taken to Bellevue Hospital. There he thought that he was in church; he appeared demented and childish, had "ill-defined delusions of grandeur and of persecution."

On admission to Manhattan State Hospital (August 25, 1905), at first he was excited and pugnacious, but on examination became quiet and agreeable and was able to maintain a conversation satisfactorily; he was rather amused and commented on the details of the examination. He was happy, felt first-rate, did not resent being with crazy people. He gave the date correctly; "This is Manhattan Life Insurance—Bellevue Hospital." He gave rather a poor outline of his life with marked discrepancies in dates, e. g., "This is 1906—I was born in 1862—I am 47 years old." His general knowledge showed considerable dilapidation. He had no adequate realization of his general impairment.

Physical Status. Right hemiplegia; defective speech; pupils reacted well to light.

The patient continued to present the same general picture of mild dementia for the next few months; he whimpered easily over detention, but on the whole showed rather excessive good humor and complacency; his memory for recent incidents was very poor, he talked of his wife having called yesterday when it was his mother who had called two days previously. On October 25, left-sided ptosis developed and became complete in a week; it cleared up after four weeks.

Physical Status (October 25, 1905). A well built man with no anatomical stigmata; scar on penis and in groin; weakness of the whole right side—face, arm, leg. Knee-jerks and Achilles-jerks exaggerated, especially the right. The gait was ataxic as well as "mowing." Babinski reflex and ankle clonus on *both* sides. Slight ptosis on the left side; the left pupil was widely dilated, did not react to light nor on accommodation; the right pupil was smaller, reacted slightly to light, well on accommodation. The fundi were normal. No hemianopia. Speech was slurring, slightly sticking, without omissions or transpositions, but with the occasional insertion of r; the writing was tremulous with omissions and distortions, e. g., "methis espical" (methodist episcopal), "bittililery" (artillery). There was no gross

sensory disorder. The cerebro-spinal fluid showed a very marked lymphocytosis.

The patient continued during the following months to present the same picture of mild general dilapidation, with no adequate realization of the mental and of the degree of the physical impairment, but without showing any definite expansiveness or other abnormal mental trend while in hospital. The left pupil continued to show no reaction to light, but it slowly came down somewhat in size.

The diagnosis of general paralysis in this case was not considered to be definitely established, for the neurological history with its varied incidents seemed to point equally in the direction of brain syphilis. An attempt was therefore made to give as much definition as possible to the elements of the dementia. The mood continued to be one of rather exaggerated complacency with a tendency to whimper when talking of home; he was anxious to go home. He admitted that he was weak, but thought that he might resume his old work; he had been able, even when hemiplegic, to work as night watchman, and he said that he had good recommendations; there was nothing intrinsically absurd in his plans for the future.

His memory was rather poor and he showed great difficulty in handling dates, and in holding the various statements together.

December 23, 1905. (How old?) "47." (When born?) "1857 (after cogitating)—48—1848—I'm 57." (Where born?) "I was born in 1848 I think." (How old?) "47." (1848+47?) "That would leave me—I would be 48 instead of 47, 48 I should say my age is." The examination of any similar point was apt to lead to absurd and contradictory statements. He showed considerable pertinacity in trying to reconcile some of these statements.

He realized keenly how dishonorably he had acted in infecting his wife; he still retained appreciation of social differences, e. g., (Your speech is pretty bad) "Mine ain't excellent at all, but mine is a little refined towards those people" (*i. e.*, in comparison with the other patients). He was much pleased at being demonstrated in the physician's private room to some other physicians. He occasionally had some difficulty in finding words to express himself, e. g., on April 16, he said that he was about to have another attack, "I have the *pheazness*, the same *systems*, I have the same touch on me that I had before." He complained of feeling dull and faint in the head. No attack occurred at this date.

On April 30, 1906, after having on the previous evening shown some confusion, the patient had a general convulsion early in the morning; both sides seemed to be equally affected. During the whole day he was unconscious; the right arm was held either against the side, or in the wing position, while the left arm moved about restlessly. The mouth was pulled to the left. Ankle clonus and sign of Babinski on both sides. The right pupil was larger than the left (the reverse of what had hitherto been the condition).

The patient did not come out of his stupor and died on May 3.

CASE 5. M. D. R., 58, admitted to Manhattan State Hospital, July 12, 1905.

Family History. The grandparents and parents showed no neuro-pathic nor psychopathic traits. The patient was the third of a family of eight children. One brother, nine months younger than the patient, began at the age of 45 to have fainting spells; "fatty degeneration of the heart" was diagnosed; in 1894 he had an apoplectiform stroke, and over a year later he had a second. His memory later failed, sometimes he became confused and did not know where he was. There was no history of his having had syphilis, but his wife had never been pregnant.

Personal History. The patient was born in 1847 in Heligoland; he was born at the seventh month, developed slowly as a child, and was rather below the average at school. He came to the United States when 15, followed various occupations, was in the navy from the age of 21 to 24, and after that time he worked as a barber in New York. He had been fairly temperate in the use of alcohol. In the navy he received some venereal infection, "a soft chancre—chancre wart—several of them," which disappeared in two weeks and was followed by no secondary symptoms. About 1890 the patient had severe hemorrhage from a varicose ulcer, required transfusion, spent several months in hospital; no record of his condition at that time could be obtained. In 1893 his mother died and even at this date the patient was rather forgetful; it was, however, not till 1902 or 1903 that he showed definite signs of mental impairment. About 1902 he was noticed to be absent-minded and very forgetful, unable to remember the visit of a friend soon after it was made. He stayed at home, partly on account of a troublesome varicose ulcer, and for the three years previous to admission had done no work. His memory became progressively worse; he showed no abnormal mental trend, was quiet, affable, compliant.

In the first week of July, 1905, he one day started to leave the house although only partially dressed, he was dazed, could not explain his conduct; half an hour later he had a general *epileptiform convulsion* and was immediately taken to Bellevue Hospital.

In Bellevue Hospital he was restless and confused, disoriented, and with extremely poor memory of both recent and remote events; "I came here last October—this is February—I think it is 1875 or 1879—I came to have my leg dressed—I am feeling first class—I am as strong as an ox—I can't do much work of late—I am getting old and weak." His mood alternated between elation and irritable depression.

He was admitted to Manhattan State Hospital July 12, 1905.

On admission the patient showed little interest in his new environment, assisted in undressing and bathing himself; in bed he was somewhat restless and fumbled with the bed clothes. When examined he was rather inattentive, but answered questions relevantly; he gave his name and occupation and said that he knew he was in a

hospital; "I was sick, but I'm all right now—I got dizzy and was taken to the hospital." "I feel first rate—I ain't got no sadness at all—I am strong and healthy now." There was no evidence of hallucinations or delusions. He was not quite clear as to the place, called it Bellevue Hospital (Manhattan State Hospital); gave the date as June, 1885, the season as Spring. He gave a fair general account of his life, but wrong dates, with discrepancies which he did not realize; he was born in 1845, his present age was 52, the present year was 1885; he said that he had a chancre in 1860 (really about 1870).

He had poor memory of the events of the immediate past; "I was in my room yesterday" (false), but remembered in a confused way what had happened; "I was brought here by an ambulance—I was unconscious when I was taken." He did not remember when he had come to the hospital, although it was on the same day as the examination; he could give no account of how he had spent the day. He could not retain even for ten minutes the name of physician, a given number, or color. He answered fairly well simple questions on general topics, but said that the President was Hayes (Roosevelt); he was able to count up 90 cents correctly, grasped the meaning of a short paragraph which he read, wrote his name very poorly, the word Rust being an illegible and tremulous scrawl, one letter being written apparently on the top of the other, and several attempts having been made at the same letter.

Physical condition (July 14, 1905): The patient was a poorly nourished man of slight build, height 5 ft. 4½ in., weight 123 lbs.; his ears were flattened and projected prominently; he was able to move them freely. He explained their appearance as due to their having been frozen 30 years previously (false explanation). There was an extremely extensive scar from previous varicose ulcers over the left shin. There was no external evidence of syphilis. There was moderate thickening of the radial and temporal arteries; the temporal was somewhat tortuous; marked thickening of brachial. There was no disorder of the cranial nerves. The pupils were noted as equal and regular and reacting normally; four days previously another physician had noted them as unequal and not reacting to light (?). No hemianopia. The knee-jerk and Achilles-jerk were not elicited on either side; on both sides the plantar reflex was flexion. No muscular weakness was observed, but the patient was rather unsteady in the upright posture, he swayed from side to side when walking; closure of the eyes made little difference; there was no tremor of tongue nor fingers. The speech was very indistinct, this being attributed to want of teeth; it was not tremulous; the writing, as noted above, was tremulous and some words were so imperfectly written as to be illegible. On July 14, however, he wrote his name legibly, while two days previously the word Rust was illegible. No gross disorder of sensibility was observed; touch seemed somewhat impaired.

The heart was slightly enlarged but otherwise there was nothing to note in the condition of the internal organs. The urine was of good color, S. G. 1017, contained no abnormal constituents. The patient had no difficulty with micturition, had control of his organic reflexes.

During August he showed no change, would lose himself in the ward, had difficulty in finding his bed at night.

On September 3, 1905, he became weak, dull and stupid, complained of his stomach; temperature 100° , pulse rapid. At 11.45 A. M. he had an attack; the eyes were drawn up and to the left; twitching of the facial muscles most marked on the left side; rigid contraction of the left arm and leg. He had several attacks of twitching but they were not severe; he did not entirely lose consciousness, was confused. In the intervals between the spasms he clasped his head with both hands as if in pain. He clutched convulsively at any object before his eyes. It was noted that his right pupil was contracted. The attacks ceased at 12.30, but at 1 P. M. he had another similar attack lasting three or four minutes, without loss of consciousness. In the evening the patient required to be catheterized; the urine contained a considerable quantity of albumin.

September 4. The patient remembered having yesterday had severe headache and attacks without loss of consciousness. Right pupil is contracted, the left slightly dilated.

September 8. "I feel numb in the head -- I have trouble in getting things right—I am confused."

October 2. Twitching during the night; in the morning two general convulsions, each lasting about two minutes.

October 3. Dazed, confused, tries to get out of bed; sees imaginary objects on the wall, "is practically inaccessible mentally."

Patient improved and soon was out of bed. His pupils at this time were noted as reacting sluggishly to light; his speech was thick; left side of face flatter than the right. His mental condition was practically the same as on admission.

November 5. General convulsion of a mild form this morning; subsequently he was confused and had no clear idea of his surroundings.

During November he occasionally required to be catheterized.

November 21. "Series of convulsions of a mild nature followed by confusion and restlessness." Cerebro-spinal fluid shows definite lymphocytosis—30 lymphocytes in one field (oil-immersion).

November 22. "Mild attack with twitching of arms and hands."

November 28. After a few days he was in the same condition as before the attacks. He realizes that he is in a hospital for the insane, does not think he is insane, says he has fits, was out of his mind when he came.

The patient's mental condition showed no change during the next few months, but he had occasional attacks with episodes of restless confusion; after one attack he called loudly for help, said that he was choking; he fumbled along the wall as if groping for imaginary objects.

March 23, 1906. This morning after being shaved the patient was seen groping along the corridor; his head was turned to the right, his eyes moved uneasily to the right. His left hand was very weak and he held it out in an extremely tremulous and ataxic manner; tactile sensibility was impaired on the whole left side; left-sided astereognosis. When examined in bed it was noticed that he saw better in the right visual field than in the left, and during the examination this hemianopic disturbance passed into general blindness. At this time he was lying with eyes turned to the left, the left hand showing almost continual restless, jerky movements.

From the beginning of the examination the patient was in a quasi-delirious condition, and talked in an extremely tremulous and almost inarticulate manner. He asked for water: "I have to swallow it—I've been told every time I've come here—you've the bon—I want a comb." He stretched out his hand; "I am only looking for the rope that's running round." He knew he was in a hospital. After some time he lay groaning in anxious distress—"Oh, oh, fire—stove, aint it—aint you."

In the evening he had six convulsions of short duration; one was reported as being right-sided.

March 24. After a restless night the patient was in the same confused, distressed condition as on the previous day; he mixed up delirious utterances and correct references to physician and hospital. He was still quite blind, could not grasp a hand held out, nor point to the window. At meal-times it was necessary to put the cup into his hand. When asked to point out the doctor, he pointed vaguely upwards and around, said "I can't see for the shine." He sat up and fumbled; "there's a door between you." He named correctly objects in the right hand, still showed astereognosis on the left. He grabbed his own left hand with his right, as if it were a foreign body, said "there's your finger," and with his right hand he opened and fumbled the fingers of his left hand.

March 25. The patient slept well after chloral hydr. gr. 15, pot. brom. gr. 20. In the morning he was still blind, unable to see a cup handed to him. At dinner-time he was able to see a cup, and in the afternoon he was mentally and physically in the condition preceding the attack. No limitation of the field of vision was noticed; he promptly grasped without fumbling a hand held out either to the extreme right or left. Hand grip equal on the two sides; no astereognosis. He had no memory of the attack; to explain his being in bed he said "I had some sickness in my head—I fell down in the street a couple of days ago—I was taken to the station house—I didn't know where I was, and then I suppose I was taken to the hospital."

April 3. The *mental status* is practically the same as on admission. He has a confused grasp of the environment, mixes it up with the other hospital where he was. He gives a rather confused account of his own past; he remembers the events of his life fairly well, but

mixes up the dates and sequence of events. He has a very poor idea of the period spent in hospital. He answers well simple historical and geographical questions, but has no knowledge of modern political leaders. His mood is rather depressed, but he occasionally chuckles fatuously and shows an inclination to jest. He recognizes his memory defect—"I am very short of memory that way eh! forget everything lately - - - I am worrying and worrying—I am disgusted with life, I ought to be dead." He has some realization of his general impairment. (Why are you here?) "Well I don't know—I suppose the people think I ain't capable of taking care of myself . . . I could work in the barber trade." (Should you have been sent here?) "I believe so—I think so." (Was it right to send you here?) "No, sir—it was not. It was right to send me here to be cured of the spell."

Physical Status. Knee-jerks and Achilles-jerks absent; plantar reflexes flexion; left pupil irregular, larger than right, both pupils react to light and on accommodation, the left a little more sluggishly than the right. Hemianopia not made out—the right side is a little doubtful (patient is rather stupid). No motor weakness; no sensory disorder, but co-operation is poor. Tremor of hands and facial muscles. Speech extremely defective with tremor, sticking and transpositions. Gait unsteady, not definitely ataxic; well-marked sign of Romberg. He has various subjective feelings - - "my head aches—the same as a drum inside;" he is very dizzy, and for a short period looks dazed, sits with head sunk forward. During mental examination he said, "I've got a pain in my head all at once - - - I am *black in part of the eyes.*"

April 4. Right-sided hemianopia. This morning he is roving about as if blind; is put to bed. In the afternoon he takes a cup promptly when held to his left side, *but not when held to the right.* He is generally confused, misnames objects.

Next day (April 5) the patient was confused, but knew physician and that he was in a hospital. He made confused semi-delirious remarks without any context, e. g., "look out! you will break that." He called a half dollar a dime, reached for it with his mouth.

After a few days he was again clear and was allowed out of bed; whether the right-sided hemianopia persisted or not, is not noted.

May 10. The patient had an attack during the night; showed no residual in the morning, did not remember the attack.

May 19. To-day the patient suddenly became blind, was put to bed. His head and eyes were directed to the right side, the eyes never coming to the left of the middle line. Trace of albumin in urine. He was mildly delirious.

May 20. At 11 A.M. he was still completely blind with eyes never brought to the left of the middle line. At noon he moved his eyes fairly well in all directions, and could see in the left visual field, although rather indistinctly; the right-sided hemianopia persisted. He said, "My head aches like the deuce."

May 21. To-day the patient had an episode of ten minutes duration during which he fought vigorously with an imaginary man who was choking him; he looked sharply *to the right*, but occasionally to the left. "What have I done to him—what the deuce have I done to that man? They are choking me." He said that it was his brother-in-law and another man, "I heard him sneak up upon me." He was able to count correctly the number of fingers held up.

May 22. The patient could not be induced to write, nor copy writing; he copied simple outlines correctly.

May 24. Perimetric examination shows right-sided hemianopia, the macula not being included in the blind area. The same result was obtained four days later.

May 31. This forenoon the patient suddenly became completely blind; he could not grip at all with the left hand, left leg weaker than the right (no motor disorder on May 30); almost complete anesthesia and analgesia on the left side of the body—face, conjunctiva, arm, fingers, trunk and leg; no sign of Babinski. Left arm more ataxic than right arm.

In the afternoon he lay in bed with head and eyes turned to the right; the eyes rarely passed the middle line to the left. He was able to give some grip with left hand, pushed blindly forward with left arm, was able to walk with support. Sensibility—touch, pain, localization—was still defective on the left side. He seemed to have a vague perception of the light from the window. He treated his own left hand as a foreign body—"here's your hand—here's the thumb—here's the forefinger."

June 1. Physical condition is practically the same as on the previous afternoon; *right* hemianopia, weakness and ataxia of *left* side, defective sensibility of left side; no loss of muscular sense; well marked sign of Romberg; no speech defect noticed.

After the physical examination he had a quasi-delirious episode, fumbled about in great distress—"I can't get up—will somebody go! Oh, God! I can't run across the street in my nakedness - - I am senseless, I dropped down and my sister died and I—Oh, God, she poisoned herself—oh! oh! oh!" He seemed to have excruciating pain in the head, not definitely localized in any area; "I have got such a headache—my head is almost busted." At the same time he knew he was in Manhattan State Hospital, was accessible, gave his name correctly.

During the first half of June the patient had no attacks; he occasionally talked in a delirious manner.

June 20. In the forenoon the patient was examined, showed neither motor weakness nor sensory defect; he showed the usual right-sided hemianopia. At dinner time he said "you'll have to feed me, I'm losing my sight." It was now impossible to get him to turn his eyes to the left of the middle line. (Look at your elbow!) "I can't—I'm color blind." There was marked facial twitching, much more marked

on the left side; there was jerking of the left hand which was synchronous with the twitching of the left side of the face. He grasped the left hand with his right, as if he were grasping a foreign body. (Whose fingers have you?) "Mulligan's." (Not yours?) "Certainly not—these are mine" (holding up right hand). Occasionally he chuckled fatuously. In the afternoon he was extremely restless, fell out of bed, laughed and made light of it.

In the evening he lay in bed groaning and grunting, was inaccessible, reacted with confused distressed reactions to pinches on either leg; no motor weakness was observed. Later the attendant noticed generalized twitching.

June 21. The patient is still quite blind and confused. His left clavicle is found to be fractured due to the fall yesterday; treated by Sayre's method.

On the evening of June 22, the patient was able to see in the left visual field. Definite right-sided hemianopia.

For a month he showed little change, was confined to bed owing to the fractured clavicle; he can not explain why he is bandaged, says that he fell out of the window, his right hand is full of glue (it is also bandaged); he talks in a jocose manner.

July 15. At 7 P.M. the left side of the face was seen to be twitching, the left arm was twitching, the eyes were turned to the right, the patient was completely blind. He treated his left hand as if it were a foreign body, caught hold of it, said "here's a hand." The left arm was almost completely anesthetic, only one doubtful reaction being obtained; later tests produced vague reactions of distress when the left finger tips were pricked; sensibility over the whole left side except over the face diminished. While the sensibility was being tested the left eye began to shut and open convulsively, the left hand began to twitch, especially the adductors of thumb, then twitching of left face, then the right eye began to shut and open, and the right side of face to twitch. During all this time the patient was quite accessible, but talked in a quasi-delirious manner, mistaking physician for his brother-in-law (a frequent mistake with him).

On July 16, he was able to follow objects moved in the left visual field, but saw them indistinctly; he called a watch "some silver thing," a boot (tan) "a pair of gloves," he guessed incorrectly the number of fingers held up. Even in the evening he called a flower-pot "a drinking cup," but recognized it as soon as he touched it.

On July 17, he had returned to the condition preceding the attack, saw and named well objects in the left visual field. He still made delirious remarks—"the milk is running through the wall;" but at the same time had some grasp of environment . . . "in a hospital and two doctors" (correct). He chuckled good-naturedly without any special ground.

On August 4, he had a confused episode with vivid auditory hallu-

cinations, he ran hurriedly into the dormitory apparently in answer to a voice; when made to sit down, he soon jumped up: "He is calling me—Rust," ran into a room, asked a patient what he wanted.

On August 26, he had a convulsion early in the morning with residual weakness of the left arm, which lasted for a day or two.

September 8. Patient has a severe conjunctivitis which is treated with frequent douching with boric solution.

September 10. At 10.30 A. M. when examined he seemed as usual. At 11.30 A. M. he is sitting with the left arm held rigidly in the wing position, the hand blue and somewhat edematous; he is totally blind.

At 1.35 p.m., the left hand was noticed to be continually flexing abruptly with twitching of the various fingers; the left eyelid also twitching. He was able to open slowly the fingers of the left hand, the fingers jerking all the time. The left side of face soon began to twitch. He did not give any hand-grip with the left hand. He put the right hand over the left hand to stop the twitching, and later rubbed the left hand. At 1.52, the left shoulder, arm and forearm were all violently jerking while the fingers were quiet. The legs were not implicated and showed no motor weakness. When the sensibility was tested at 2.32 he did not react at all or only vaguely to pin-pricks over the left hand and arm, but reacted to pricks over the left face and leg and the whole right side. At 3.25, chloral hyd. gr. 20, pot. brom. gr. 30, were given and the twitching soon ceased; the left arm remained very rigid. He continued to make delirious remarks and was restless.

On September 11, sensibility had returned to the left arm, he reacted promptly to pin-pricks all over; he was able to follow objects with his eye, but did not seem to grasp their nature. He gave a rather weak grip with the left hand, "this is a little lame," he rubbed it with his right hand.

September 12. He still had difficulty in naming objects seen in the left visual field.

September 13. He could name quite well objects shown in the left field; was generally clearer.

The patient continued in the same state for a month, was able to go about the ward.

On October 12, he was seen wandering round the ward in a confused way; he was unable to see anything, was put to bed. He lay in bed groaning in great distress; he grasped well with the right hand; he gave no grasp with the left hand, which was slightly cramped. He rubbed the left arm in a distressed manner. Sensibility on the right side was intact; on the left side it was generally impaired, but not uniformly. On the left side he reacted although imperfectly to pin-pricks over the face; vigorously to pricks over the finger-tips; he did not react to pricks over the forearm, but somewhat over arm and shoulder; he reacted well over the left trunk; imper-

fectly over the left leg (in the previous attack on September 10, sensibility over the left leg was not impaired).

The attack like the previous one consisted essentially in mildly delirious behavior, in temporary elimination of the left visual field, weakness of the left arm, and impairment of sensibility on the whole left side.

October 13. In the morning the left hand was still numb, but no defect in sensibility could objectively be determined; he was blind. At noon he had some visual perception; in the evening he saw quite well in the left visual field.

During the following night he was much excited, talked of there being snakes in his bed, he bit his own arm. For the next two weeks the patient remained at about his usual level.

October 24. The patient had a general convulsion preceded by a variety of twitchings beginning on the right side; the whole episode lasted from 10 to 15 minutes. The following was the series of events: At 11.45 A. M., when summoned for dinner, he made no response, stood looking in front of him; the eyeballs showed nystagmoid movements towards the right side, he nearly fell but regained equilibrium, right thumb began to twitch, then some of the other fingers; he reacted less to pin-pricks on *right* side than the left. When asked to put out his tongue, he sniggered, made no response. Right orbicular began to twitch, then left orbicular, flickering of corner of mouth, head pulled round to right (is placed on a chair with difficulty as he does not unbend), right frontalis contracted, fingers were now twitching vigorously, left angle of mouth was continually jerked down, elevators of right angle of mouth twitched vigorously. He now uttered a cry, mouth was pulled to right, legs raised stiffly off chair, he became livid; after a short time wide clonic movements of legs, then sudden relaxation, deep stertorous breathing. The last twitches were in left hand.

In the afternoon he had two more convulsions; was later restless, distressed, moved his hands freely but handled the left with the right as if it were a foreign body. Pin-pricks on the left hand were not reacted to; were reacted to on *right*.

October 25. In the morning he was quite blind, but said that he could see. In the afternoon he said that he could not see, but evidently had some visual perception, grasped with his hand objects held in the left visual field, followed them with his eyes, but did not recognize them. He evidently experienced some difficulty in visual perception—"you're half a mile away—farther off." Sensibility of left arm showed no defect.

October 26. Sees well in the left visual field; shows his usual mild confusion and poor orientation.

On November 9, he had another attack with obliteration of the left visual field. There was twitching of the left face, platysma, orbicularis palpebrarum; the eyes were almost always turned to the right.

No reaction to pin-pricks on left arm, face, leg; accurate reaction on the right.

November 10. Continues in the same condition, blind and confused.

November 11. He followed objects in the left visual field, named correctly some objects shown, added delirious statements, e. g., "I saw the cat running past too—the poor dumb an — animal." The left eye was less widely open than the right.

He did not react to pin-pricks on the left side except over forehead. The left hand grip was loose and clumsy. He was jocose, made foolish remarks with no context, said his left arm was pasted on, he could steal a penny off a dead man. When visited by his sister, at first he did not recognize her.

November 12. The blindness on the left side has passed away; he says himself—"I can see better." There is no anesthesia on the left side. He continues to make delirious remarks.

December 3. For the last ten days the patient had been wandering rather disconsolately about the ward; he sometimes said that he had been put out of his house. This morning he became blind, was placed in bed. Pin-pricks on the left side—face, arm, trunk, leg provoked no response; he chafed the left with the right hand. He gave a very feeble grip with the left hand, grasped vigorously with the right. He walked with short, uncertain steps, and on the outside of the left foot.

During the following night and next morning he had a series of convulsions; on December 4, he gave no sign of recognition, was quite irresponsive, in the evening had two convulsive attacks, and spent a restless night.

In the morning (December 5) both his arms were jerking; there were clonic contractions of the shoulder muscles, the fingers were not twitching; the right leg was occasionally moved, the left leg lay quite still. Sign of Babinski on the *right* side; plantar flexion on the left. Although the left leg was quiet it was very rigid and the muscles were seen to contract from time to time. The head and eyes were turned to the right, the mouth drooped to the left and was wide open; the right side of the face twitched occasionally.

The movements continued from early in the morning until ten o'clock when they ceased for a short time. He did not react to pin-pricks over the left side, finger-tips, arm, shoulder, face, except over left jaw; he reacted over the right finger-tips and over the right face, but not to pricks over the right arm and shoulder. It was not possible to determine the sensibility over the legs.

The movements continued all day, and the patient had two convulsions in the evening with marked throwing about of the limbs, especially the right leg and left arm (attendant's note). To protect his right leg the bedboard had to be padded.

December 6. Convulsion at 5 A. M. When examined at 10.30 A. M. he was quiet but soon began to show restless movements of both

hands and fingers; the fingers of both hands flexed spasmodically and simultaneously. At first the hands alone moved; then the arms began to jerk irregularly. Sign of Babinski on the right side; flexion on the left side.

The movements continued during the whole day, but in the evening they were less limited to single muscle groups, but consisted in rather aimless abrupt movements of the whole limb. He was slightly brighter than in the morning.

On December 7, he was cheerful and talkative in the morning; at 8 A. M. was dull and irresponsive; at 11.15 A. M. he was brighter and talked in an unintelligible, indistinct manner. He did not utter well-pronounced distorted syllables, but at first a mere washed-out imitation of speech in which no word nor syllable could be made out. Later his utterances were more distinct. He was mildly delirious—"Kni—knife—kni—never carry—I never carried a knife since I stabbed that fellow—since I carried—since I stabbed that fellow." He did not recognize his sister. The left arm was somewhat restless; with the right arm he made incomplete quasi-purposeful movements, which began as if with some definite aim and ended in quite aimless restless movements.

The right leg was limper than the left and showed the sign of Babinski.

From December 7 to December 15, the patient remained restless and mildly delirious; was apparently completely blind. He appeared to hear things—"there's the bell," picked imaginary things off the bedspread. The left hand took *less* part in the delirious movements than the right. He sometimes suddenly acted on the defensive—"don't be hitting me on the nose" (no one was touching him). He was apparently blind until December 15.

Sign of Babinski on the right side persisted, was noted on December 12.

On December 15, in the forenoon, the patient was able to see in the left visual field; he adopted a sparring attitude to physician, did not speak even when coaxed. Plantar reflex on right side;—flexion. In the afternoon he appeared to be quite blind, was delirious and distressed.

December 16. Sight had returned in the left visual field. The patient was still mildly delirious, but recognized his sister.

December 19. Ophthalmoscopic examination under atropine (Dr. Holden): Right disc normal; left disc not seen but vessels of fundus normal. He counted correctly fingers held up.

December 23. The patient was able to see in the left visual field, read the time correctly, but during a visit he had a little episode of incoherent excitement, in which it was doubtful whether he could see; later he was able to grasp objects in the left field.

December 31. The patient has continued at the same mental level, just bordering on a delirium; he fumbles about in bed, mutters frag-

mentary remarks in German and English. He has some visual perception, sees a lighted match in the left field; he is frequently difficult to examine.

4 p. m. He appears delirious, making movements with the right arm as if throwing, picking up objects; the left arm makes jerky movements of less extent. Reaction to pin-pricks was everywhere fair except over the *left arm and hand*.

Sign of Babinski on the right; brisk flexion on the left. No weakness of either hand grip. Both pupils react to light; the right is larger than the left; both are irregular.

January 1, 1907. The patient to-day names correctly objects in the left visual field. Lumbar puncture discloses abundant lymphocytosis of the cerebro-spinal fluid.

January 3. Mildly delirious, talks of being in a barber's shop (occupation delirium), picks imaginary threads off fingers. He sees in the left visual field. Do you know Dr. C. (his physician)? "He's situated Ward's Island (puts out his hand), this is sick bay Island of Manhattan." Do you know Dr. C.? "He's acting doctor on the isl—of—*island of Ward's Island—he's in the sick bay of the island of Manhattan.*"

During January the mental level of the patient varied from time to time; he was frequently rather difficult to rouse; he frequently showed mild occupation delirium. When interviewed in the middle of a mild occupation delirium he could be roused to show a fair grasp of the environment—"Oh, is that you doctor? I was going to make my bed" (has been fumbling about). "I'm sick—I'm in the doctor's care—I know I'm very sick," "memory's all right." "This is a broker—room—a boarding house." He was able to see in the left visual field, but gave evidence that occasionally in the restricted field vision was indistinct, *e. g.*, he once said "all that I see is the light" (electric lamp), and was unable to name a coin. He was able, however, when roused, to recognize printed letters, he read U. S. as "uns," and Rust as "Roost—rust—what you get on a stove." The sign of Babinski persisted on the right side; occasionally he grasped his left hand in his right as if it felt different from the right. The pupils reacted somewhat sluggishly to light, the left more sluggishly than the right.

February 1. The patient is very feeble, he can not be roused at all. Pulse 56; heart sounds clear; no respiratory nor abdominal symptoms. His excretion of urine has been very variable in amount; he has frequently required to be catheterized.

During February the patient showed little change, but lay in bed, fumbling and groping from time to time. At times he reacted to objects in the left field, at times he appeared quite blind; the pupils reacted slowly and slightly to an electric lamp. Occasionally he made delirious remarks.

Early in March the right side showed clonic contractions and on

March 25 there was twitching of the right face, arm and leg with no reaction to pin-pricks over these regions, while on the left side the patient reacted. On March 31 the right arm showed violent clonic contractions. During April clonic contractions of the right side were frequently noticed, the left side being much less involved; plantar flexion on the left, extension on the right.

He became progressively feebler, and died at 1 P. M. on May 7, 1907.

CASE 6. S. G., 44, driver; admitted to Manhattan State Hospital August 15, 1906.

Family History. Negative so far as known; the information was very meagre.

Personal History. The patient was born in Russia in 1862; according to his own account he developed normally, became a cab-driver, married in order to please his mother, but separated after one week. His habits were irregular; he admitted gonorrheal infection, but denied syphilis. He married for the second time in 1894, had four children, one of whom died of "summer complaint." His wife had a miscarriage two months after marriage. The patient came to America in 1892 and worked steadily as a driver in New York City, being temperate in the use of alcohol according to his wife. Almost as far back as 1896 the patient had attacks of pain, chiefly in the left leg; the pain would come on suddenly like a shock and would jump from one place to another like "pins and needles;" occasionally the pain would go into the right leg. In 1900 he began to complain of a numb feeling in the left foot. On one occasion he was brought home in a wagon owing to weakness of the left leg; at that time he complained of pain in the calf and foot; his wife noticed no weakness of the left arm nor face, and there was no speech nor swallowing difficulty. He was in bed for five weeks. He appeared to recover completely, walked without any limp, resumed his work.

After this left-sided attack he was more inefficient at work. In 1903 or 1904, he fell off his wagon and sustained a fracture of the left arm; one finger had to be amputated. He was now cranky and irritable, his gait was ataxic; he was sent to Nebraska by the Hebrew Society. His wife tried to carry on a boarding house there, but was unsuccessful owing to the disagreeable behavior of the patient. They returned to New York and he peddled fruit and pretzels; he imagined that he was making his living, but in reality lost money. He now walked like a drunken man. He was considered to be insane in 1905.

In October, 1905, he was admitted to Montefiore Home; after a few months he began to be very expansive; in June, 1906, he was sent to Bellevue Hospital, where he boasted of his magnificent voice, of his great strength and weight, which he said was 205 lbs. (148 lbs.). He said that he had received \$500 for singing. He was sent to Central Islip State Hospital and there showed the classical symptoms of general paralysis with a well marked tabes. He was able to sing for

the president, could earn \$1,000 a week, a princess was in love with him when a boy, he could burn a woman with his look; his sister was worth \$25,000,000.

After two months he was transferred to Manhattan State Hospital.

On admission to Manhattan State Hospital (August 5, 1906,) the patient was quiet and agreeable, smiled pleasantly and co-operated well in an examination; he answered questions relevantly, and the somewhat fragmentary nature of his utterances was probably due to his difficulty with the language. He was very much elated, boasted of his vocal powers and his great strength, but said that he had not one cent. He said that he saw his dead child at night and that he heard people singing at night time. He gave the date as February 30, the place as Bellevue Hospital, 26th street. He gave correctly the main facts of his life, but was not accurate as to the age of his children. He had a rather defective memory for the recent past, although he could give a general account of having passed through three hospitals. He showed no very marked defect in his grasp of general information. He counted 38 cents correctly and quickly. He had absolutely no insight into his physical and mental impairment.

Physical Condition. A very well nourished man, with no external evidence of syphilis. Slight ptosis of the left eyelid; pupils unequal, reacted on accommodation, but very sluggishly to light. Absence of knee-jerks and Achilles-jerks; plantar flexion on the two sides. Marked ataxia; tremor of fingers, tongue and facial muscles. Speech tremulous and sticking with distortion of words. Writing untidy, his name being almost illegible and showing marked tremor. General diminution of pain sense.

During the summer the patient continued to be quiet and good-natured; he gave the year as 1606 or 1506, and then again as 606. He still maintained that it was Bellevue Hospital and denied that there were any crazy people about. He did not give any relevant answer when questioned about hallucinations.

On September 17, he fell and sustained a fracture of the *left* thigh, which did not unite. The fracture became compound and in December the end of the upper fragment was sawed off without there being any necessity for an anesthetic; the skin was sutured and the wound healed well. He continued to have grandiose ideas and talked of his relations to prominent princesses and actresses, his ideas had a marked sexual trend. By May he was able to bear his weight on the injured leg, and to hobble about the room with support.

On June 4, 1907, he had a general convulsion lasting about half an hour, followed by irregular twitching for several hours. During the following week he had several convulsions; there was almost constant twitching of the left arm and occasionally of the left leg. *On June 6*, there was weakness of the left face and upper extremity; he had a considerable amount of movement of the left leg; touch and localization were impaired over the left face, arm, trunk, leg; there was left-

sided hemianopia. The pupils were unequal, showed no reaction to light, and defective reaction on accommodation. Ptosis of left eyelid. *On June 11*, the convulsions had ceased; he was unable to move the left side and had left-sided hemianopia. He said that he had been killed on the previous day and that he was now dead. He wished all the medical men to come and examine him.

After two weeks the left side was somewhat stronger. He was rather irritable and abusive.

During July there was no change in the patient's general condition. Although the left side was weak, he was able to get from his bed to the chair and back without assistance.

On August 12, the left arm and leg began to twitch, without involvement of the face; the contractions were more frequent than the heart-beats. There was definite impairment of sensibility on the left side. There was no impairment of consciousness; he was talkative, referred spontaneously to the twitching, said that he was certainly going to die in the evening, and that he would therefore like to go home to his wife and arrange about the insurance. He said that he did not feel pain, but was annoyed by the twitching; "I know I am dying, I want to speak with my three children, to be good to the mother when I am no more, I am very sorry when I must die, I will be 45 on Christmas, do for me what a poor man, a dying man, expects, put me in two blue blankets and in the ambulance, want to die with my woman." He accepted comforting assurances gratefully, and when told that he would be all right he said: "Really, well then all right; when you explain me that I wait." Next morning the left leg and arm were at rest, but on the left side in the region of the head and thorax there were irritative symptoms. The sternomastoid and scaleni were felt to contract strongly, the head was jerked to the left, the left side of the thorax was simultaneously affected, but the pectoral was not felt to contract. The diaphragm contracted synchronously with the above groups, the right side of the thorax did not participate in the frequent jerky upheavals of the left side.

On August 14, in the forenoon there was occasional twitching of the left leg, arm and muscles of the neck, but not of the face; in the afternoon no twitching was observed.

August 29. Since the last attack the left side has remained slightly weaker and the patient can no longer get to the chair without assistance. The left-sided hemianopia persists and there is diminution of the sensibility on the left side, except over the face where no difference between the two sides can be demonstrated. Slight left-sided ptosis. The fingers of the left hand tend to be flexed and stiff, but can be straightened out.

The patient was euphoric, but made no boastful statements. In giving an account of his life he was quite unable to correct glaring discrepancies.

October 13. Last night the patient had a brief general convulsion. This morning the patient has returned to his previous condition.

November 4. Twitching of the left face, leg and arm for one and one-half minutes, loss of consciousness for one minute; return to previous condition.

November 6. Last night and this morning left-sided convulsions, not carefully observed. The left arm this morning is no weaker than before; it frequently moves in a jerky fashion and he holds it with the other hand. He is able to move the left hand awkwardly. Left-sided hemianopia and diminished sensibility.

November 17. Last night the patient had a general convulsion which began on the left side. To-day he is in his usual condition. Two weeks later the patient began to have a series of general convulsions, in the intervals between which twitching of the left side persisted.

November 30. This morning he began to have twitching of the left leg and arm (face not mentioned); at noon he had a general convulsion, preceded by a short cry. He lost consciousness for about one minute. On regaining consciousness he appeared frightened, said that he was sick; he wanted an ambulance sent for. During the following night he had a general convulsion.

December 1. Slight twitching of the left side persists, but does not interfere with his voluntary movements. He seems happy, laughs and talks to himself.

December 2. During the night and this morning he had severe convulsions. Twitching of the left side persists but the jerks are quite far apart. The head is tilted to the left, and he can not turn it to the right further than the median line. The twitching involves the head and draws it to the right. The head, arm and leg jerk synchronously.

The patient is depressed, thinks that he will die soon; he can easily be induced to smile.

December 3. Convulsion last night. The twitching continues but is less pronounced and with longer intervals between the movements.

No further convulsive attack occurred at this time; the twitching continued during the following few days.

On December 9, it was noted that the weakness of the left side had become more pronounced after this series of convulsions; the patient could barely lift the left arm from the bed.

During the first half of 1908 the patient was not observed very closely; he was noted in March as having a convulsion, with special involvement of the left side; on May 1, he had twitching of the left side, which lasted for a few hours.

November 12, 1908. The patient's mental condition has changed little in the past year; he still is grandiose, talks of palaces and millions. Knee-jerks absent; plantar flexion on the right side, no plantar flexion on the left. Left hemianesthesia and hemianalgesia almost complete, less marked over the face. Left face paretic; considerable

weakness of left arm; he can not lift the left leg from the bed. The left eyelid occasionally droops a little but can be moved voluntarily as well as the right. Argyll Robertson pupils. Very pronounced lymphocytosis of the cerebro-spinal fluid; butyric acid test positive.

On later examination the plantar reflex on the left side was more of the extensor than of the flexor type; a response was difficult to elicit; there was an occasional extension, occasional flexion. Oppenheim—slight extension on the left side.

During 1909 the general condition of the patient showed slight further deterioration. The neurological symptoms remained the same. July 23, 1909: Argyll Robertson pupils, knee-jerks absent, ataxia and hypotonia. Flattening and weakness of the left side of the face, weakness of the left arm and leg, occasional extensor response of the big toe. Left-sided hemianesthesia and hemianalgesia; left hemianopia. Left-sided ptosis. Marked tremor of the tongue and fingers, speech slow and slurring with great distortion of test words. On September 23, it was noted that the fingers were flexed on the left hand, the hand on the wrist, and that they could be only extended to a slight degree. The mental condition showed little change; he gave his age as 37, 46, 36, 47; he had married three years ago at 15 or 16.

On November 5, 1909, in the evening the patient became unconscious and remained so until his death; the *right* side of the face, right arm and leg were twitching, and continued to twitch with intervals until death.

On November 6, 3.25 P. M. the patient died.

CASE 7. R. F., 34, actor, right-handed; admitted to Manhattan State Hospital April 13, 1905.

Family History. Negative.

Personal History. The patient was born in the United States in 1870, was a healthy, intelligent child; at 14 he became a compositor; at 20 he went on the stage; about 30 he married an actress, but separated after a few months. He himself admitted having had a chancre and skin-rash, but could give no details; he was addicted to the use of alcohol.

For several years before admission the patient had violent outbursts of passion; in 1903 he had difficulty in getting work, probably because he had difficulty in learning his parts. In the summer of 1904, when he came back from a tour, his speech was very defective and drawling. In October he visited a friend, was *unable to speak*; instead of going home he went to pay another visit, was found *unconscious* and taken to a hospital where he remained for six days. No further details of this apoplectiform attack could be obtained. On admission to the hospital he was diagnosed epilepsy, and on discharge acute alcoholism. Some time after this he had hallucinations one night, saw all sorts of animals on the ceiling. During the winter he remained at home, showed no desire to work. On April 3, 1905, he went out for

a walk, had a *wandering episode* and was heard of seven days later in Bellevue Hospital; he could give no account of his wanderings. There he was extremely stupid, made *almost no replies to simple questions*, answered "yes" when asked if he was strong and well; as a rule he merely smiled instead of answering. He was committed to Manhattan State Hospital on April 14, 1905.

On admission he was simple, childish and elated; he did not know where he was; he gave the month as March, and again as June. "I am in elegant health, I was never sick in my life, I am an athlete, I am an actor and I am as good as any of them in my line, nothing worries me, nothing bothers me, I have no troubles and I am very happy." His memory was very poor.

Physical Condition. Knee-jerks exaggerated; pupils sluggish; speech defective; tremor of facial muscles; gait and upright position unsteady; lymphocytosis of the cerebro-spinal fluid.

During the ensuing year he showed little change. In *October, 1905*, he had several convulsions. He thought that he was in a hotel, could not give the date, had very poor memory both of the remote and recent past.

In *July, 1906*, he had transitory weakness of the *right* hand and the right side of the face; no sign of Babinski; the duration of the weakness was not noted. On *October 23* he became stupid at breakfast, did not take his food, was carried to bed. There he lay with his eyes open, but made no reaction to questions and demands. There was no asymmetry of the face, either when at rest or during yawning; the strength of the facial muscles could not be further tested. There was marked weakness of the *left* hand; he could not stand, made no effort to support himself; impairment of sensibility on the whole of the left side—face, arm, trunk and leg (defective reaction to pin-pricks *i. e.* slight uneasiness, and only occasionally well-directed movements); apparent *left-sided hemianopia* (no reaction to feinting from the left, no attention to objects in the left visual field); plantar flexion on both sides; marked exaggeration of all the deep reflexes, no difference between the two sides. He took dinner well and in the afternoon could make a few, almost inarticulate remarks. (How are you?) "All right—read—re—re." (Your name?) "Re—whe—whe—le—red—read." Next day he showed little change, but was able to swear freely. On *October 26* the motor and sensory disorder had disappeared, the apparent *left-sided hemianopia* persisted. He did not recognize his mother, said that she was dead; he occasionally laughed and talked about "bastards," "sons of b—," etc. On *October 28* he was seen in the forenoon swearing furiously with head and eyes directed *towards the left side* as if in response to visual hallucinations in the apparently hemianopic field. In the afternoon he was quiet, answered questions relevantly. On *October 31* he read print promptly but with some mistakes. *The hemianopic disorder persisted*, and as a rule the patient lay with head and eyes turned to

the right, and showed no interest in the world to the left. If pricked by somebody on the left side he swore at the man whom he saw on the right. His utterances were limited to fragmentary oaths; he lay in bed, gritting his teeth loudly, occasionally shouting peevishly and swearing, when not disturbed. He became steadily more emaciated, and much contracted, so that for the last three months of his life he lay folded up with thighs on abdomen, heels on buttocks. He used the *left* hand, which was the colder of the two, less than the right.

In *February, 1907* (examined February 9, 26), there was well marked *diminution of sensibility* on the whole of the *left* side, and he did not grasp at all with the *left* hand; the apparent left-sided hemianopia was permanent. The plantar reflex was flexion on both sides; the pupils showed very slight and sluggish reaction to the electric lamp.

On *March 13*, at 9.45 A. M., the head and eyes were turned to the left; the eyes were somewhat raised, moved about uneasily, never came to the right of the middle line. The right arm was rigid and flexed with the right hand at the throat, the fingers completely flexed. It could only be extended with considerable force, then gradually it returned to its previous position. The left arm was slightly stiff, the fingers only semiflexed. Plantar flexion on both sides. The patient was unconscious. On *March 14* the patient was in the same general condition, the eyes, however, occasionally came to the right. The *left* cheek was flatter than the right. On *March 15* the eyes were directed to the right, and the patient reacted promptly to feinting from the right side. On *March 30* the eyes were turned to the left; he showed no reaction to a lighted match even in the right visual field.

The patient had become steadily more torpid, but took his food eagerly up to the end; the excretion of urine was very variable, on two occasions within the last week he only passed two ounces in the 24 hours (removed by catheter).

He died in a state of profound emaciation on April 5, 1907.

CASE 8. A. S., 26, laborer; right-handed; admitted to Manhattan State Hospital January 22, 1906.

Family History. The patient's father was a heavy drinker. Nothing further was known of his antecedents.

Personal History. The patient was born in West Virginia in 1878, developed normally but received a meagre education, worked as a bootblack and later as an efficient riveter; he was very intemperate. About four years before admission to the hospital he had a chancre (brother's statement); nothing was known as to treatment. During the winter 1904-05, he became inefficient; "he would once in a while act simple, then pick up again." If asked a question he would ramble on irrelevantly; when told to do anything he would simply laugh and whistle and not do it. His speech became progressively worse during the six months previous to admission. From October to December,

1905, he worked cleaning dishes at a lunch counter for two or three hours a day. At no time previous to admission were ideas of greatness or other morbid ideas noticed by his brother.

In January, 1906, a few days before admission to Bellevue Hospital, the patient was sent to the laundry; three days later he was found in a hospital in New Rochelle, where he had been taken after being discovered in the woods with his arms round a tree. *He could not talk* to his brother when visited in the hospital, but would only laugh; he tried to talk but something seemed to catch his speech (the above anamnesis was obtained from his brother in May). He was transferred to Bellevue Hospital. There he showed a great difficulty of expression; "I feel—feel—feel all—all—all—all right—I am twenty—twenty—twenty two years" (26). The patient was apt to repeat the last few words of the question, and only answered after much urging and in a stammering way.

January 22, 1906. Admitted to Manhattan State Hospital. The patient had a dull, drowsy appearance; he had to be assisted in undressing and bathing himself. In bed he lay quietly, seemed to take a languid interest in the environment. He took his food well and tidily and was cleanly. He smiled to the physician but only answered questions after a preliminary pause and with considerable difficulty. He promptly gave his hand when asked to do so, but later showed some disinclination to be examined, withdrawing his legs and covering himself, without showing active antagonism. He occasionally tried to leave the room, but gave no reason for it; he could not be brought to kneel on a chair (to test the Achilles-jerk), insisted on standing up on the chair and holding his leg in various awkward positions.

His mood was one of mild good humor; no morbid trend was elicited. He gave his name when asked, said that his age was 20 (26). He had a general idea of the environment and of the season. (What kind of a place?) "This stol—pol—sstol—pol—isn't it spol?" He gave no spontaneous account of the past; his answers were fragmentary, elicited with difficulty and sometimes contradictory. He said that he was born in "W—W—jest—W—gi—g—W—W—W—Virginia" (correct). (What is your work?) "My work—rai—rail road—railroad." (Engine driver?) "Driving rivets." (Where did you work?) "Every G—d(?)—every railroad (points out of window)—every 9th Ave—6—6—3rd—3rd—3rd was the—that was all the railroad." He denied any memory of Bellevue Hospital, but had a correct grasp of the duration of his stay in the present hospital; he could give no account of how he came here. His grasp of general information showed extreme dilapidation; he was unable to do a simple multiplication; 4×5 ? "6". He did not grasp a test name nor number well enough to retain either, even for the shortest time. He had no insight into his condition, said that he was strong, that there was nothing wrong with him.

Physical Status. The patient was a very muscular young man 4 ft. 4 in. in height; no anatomical stigmata; nutrition satisfactory; evidence of recent frost-bite; old injury of thumb. There were several syphilitic scars on the shins; he admitted having had a chancre, could not give a trustworthy date. The pupils were slightly unequal (left smaller than the right) and showed the sign of Argyll Robertson. The left knee-jerk was active; the right knee-jerk was not elicited on the first examination, but on a later examination was found to be present but very feeble. No other Achilles-jerk could be elicited. Plantar reflexes; smart flexion on both sides. There was no local sensory disorder; he localized well on touch with a brush; there was general diminution of the sense of pain. There was no motor weakness. His gait was ungainly, but not ataxic; he was able to stand steadily with his feet together. There was marked tremor of the tongue and facial muscles, but none of the fingers. Speech was extremely defective with tremor, sticking, and marked distortion of the test words; *e. g.* (Methodist Episcopal), "kisc cop cop;" "mest-a-ist-ist-a-ist oc;" "mist-a dis-a dist-oc-al;" (third riding artillery brigade) "thir-till-ll-i-go;" "ah-till-ll-r-r-go." In attempting to write the patient merely produced a tremulous distortion of the initial letter of the word asked for; he could not write his name. Organic reflexes under control. Slight peripheral arteriosclerosis.

Disorder of Speech. The patient showed a disorder of speech which was more than a simple dysarthria. He understood simple commands, although he occasionally failed to co-operate. He answered simple questions as regards his name, age, birthplace, work, orientation, etc. His occasional failure to respond was attributed to the general mental reduction, and not to a specific disorder in understanding spoken speech. In expressing himself the patient spoke slowly and showed marked dysarthria; at times his utterances were inarticulate, and he would make use of gestures. He frequently repeated syllables, especially the first syllable of a word. (How do you feel?) "How—ch—ch—fee—feel—feel." (Are you sick?) "Si—si—pray—why." (Name?) "My na—na—na—is Smith." (Correct.) At times he used paraphasic utterances. (Are you sick?) He laughs, much amused, "Sick—turk—turk—turks—scru—scru—crose (? clothes)—s-s-s—and a bum, a bum—see—der—Andre (his brother Andrew)—bu—butt—button (? referring to shirt)—they're on-da on-da on-da bum."

The patient gradually became more alert; his speech improved, but he was still exceedingly difficult to understand owing to his stammering repetitions and general difficulty of expression. From time to time during the first week in the hospital he got out of bed, hunted under the bed for fairies. He was rather dull, but occasionally picked up the remarks of other patients and laughed at them. The following is an example of his utterances (January 30): (How did you get your finger hurt?) "I got that—to—taken off—wor—work—

machine—with a machine—bottle—was put—putt—putt n—a co—cork in see and that see it—co can—went in right there see.”

By April the patient had become an active and willing worker in the ward; his speech still showed marked stammering and sticking; he would frequently give up the attempt to express himself and smile vacantly. (What place is this?) “Sta—sta—state.” (Q. repeated)—“Jus—jus.” (What for?) “Jus four yar—yo—jes—jes”. In May he was able to express himself better; he gave fragmentary information about his past; his memory was very poor and confused. During the summer he remained at the same level.

October 2, 1906. Apoplectiform attack: right-sided weakness of arm and face and hemianesthesia; apparent right-sided hemianopia, twitching of right face and platysma.

Before dinner the patient was unable to carry in the tray, which he had usually carried in. At dinner he became pale, his head fell forward; he was placed on the floor, a large piece of tomato was removed from his throat. He was placed in bed. He there made inarticulate sounds, appeared to be trying to talk, he was distressed, made continual restless movements. *He made no response to written or spoken demands*; he gave an equally feeble handgrip on the two sides. In the afternoon he became somewhat quieter. At 6 P. M. the *right side of lower face and platysma* began to twitch simultaneously; he began to show continual restless fumbling movements in which he used only the left hand; he seemed unable to grasp the clothes with the *right hand*, he fumbled the right hand with the left as if the right were numb or a foreign body; he gave a weak hand-grip with the left hand, *no grasp with the right. He was able to stand up without support.* There was no sign of Babinski. His reactions to pin-pricks on the two sides of the face were equally variable; he did not react to pin-pricks over *right* arm and leg, reacted sluggishly on the left side. The eyes never came to the right of the middle line; he could not be induced to look to the right; feinting at the eyes showed that there was an apparent *right-sided hemianopia*. The patient soiled the bed; he required to be catheterized. The urine showed no albumin.

October 3. Twitching of right platysma and of right side of face; occasional twitching of elevator of right ear. The right side of the face was weak. The patient became brighter in the evening, but articulation was still poor although one or two words were intelligible.

October 4. The right side of face, right ear and platysma still continued to twitch; right face was weaker than left; the patient began to move spontaneously the right arm much more. He showed generally diminished sensibility with no difference between the two sides. Feinting at the eyes demonstrated the same apparent *right-sided hemianopia*; but the patient from time to time spontaneously moved his eyeballs to the right. He was generally brighter, but practically inarticulate; he was uncleanly.

October 5. Right side of face continues to twitch, but not the platysma nor ear. The patient is generally brighter.

October 6. Twitching has ceased. The mouth is pulled to the left side; the right side of face moves much less than the left. The patient is, as a rule, inarticulate, but twice said "yes." He looks bright but does not carry out spoken nor written orders; when given a magazine with the page upside down he reverses it. He makes no effort to pick out objects named, shows no objection when wrong names are given to them. Sensibility to pin-pricks over the right arm seems impaired, but he reacts to pin-pricks over the fingers. Over both legs the reactions to pin-pricks are the same. He does not react to feinting at the eye from the right side so constantly as from the left.

On October 7 there was some twitching of the right side of the face which stopped three hours after pot. brom. gr. 30 and chlor. hydr. gr. 20 were given.

The patient was allowed up on October 9; he was still unable to speak; the weakness of the right face persisted but no gross weakness of the right hand was present. It was not noted whether the sensory defect and the hemianopia persisted.

On October 12 twitching of the right side of the face reappeared without any loss of consciousness, while the left side of the face showed some coarse tremulous movements, but not the definite clonic contractions of the right side. No weakness of hand could be demonstrated; the right side of the face seemed less weak than on October 9. Although articulation was extremely poor, the patient had in the last three days made so much progress that he was partly intelligible. He spontaneously gave a few fragmentary reminiscences of his life before admission, referred to his brother's liquor store, to his own work on the railroad and dock. "I'd like—I'd like—go home—I con—num—num—10 W. Street—W. Street—down (points)—liquo—go—liquor store—number 10 West Street—it's liquor do Andrie—no ga—ga—that's my brotha—n—n—Jack—that's—that's—Jack—that's—the—the partner—with—wi—he's—hotel—eh—ah—I was—I was pa—partner (grins)—I was under Ado—I—I worked on a rados—id—wa—on train—you know—ah—I ten—ten years worked on—ah—on railroads—that right—I have—ah—ah—I don know—I don know—ah—pah blaws—arn vous—was on the dock—oranges—."

The disorder was not merely an articulatory one, but to a certain extent seemed to depend upon a special difficulty in the higher speech mechanism.

At first the patient did not respond to spoken questions or commands, but after some time he gave his name correctly, his age as 60, 40; he showed considerable perseveration. He picked out a knife when it was named, read a series of numbers on a tape-measure, made confused attempts to add up small change. When asked to write he made an initial scrawl, dropped the pencil, said "I can't."

For the next two weeks the patient went about the ward, talked a

little, occasionally showed twitching in the right face, which was especially well marked when he smiled.

On October 28, he appeared dull, confused and flushed; he was put to bed. *The right side of the face was occasionally twitching*; it was not possible to test the strength of the limbs; the patient did not react to pin-pricks on either arm. He made peculiar clucking sounds with his tongue, which lay in the left side of his mouth. He laughed, "a-ha-ha." Your name? "Ant-o-ty," (Anthony) said with tremor, especially of the right face, and only after one or two efforts. He made no endeavor to name objects. The test for hemianopia was inconclusive. Knee-jerks: right not elicited, left brisk. Wrist and triceps reflexes equally exaggerated on the two sides. Plantar flexion on both sides.

During the next month the patient was continually restless and fumbling with his clothes, grinned foolishly when interviewed, began to talk a little.

By the end of November he answered a few questions, talked in a *high-pitched, tremulous, almost inarticulate* voice; he frequently was unable to articulate but made *high-pitched, squeaky sounds*. He gave his name; continued to repeat his name in answer to several other questions. Are you sick? "Sick—no—no—I aint sick." Why are you in bed? "Ant—y Smith." (Q. repeated) "I don't know—wha—wha—." His answers to simple orders were extremely defective. (Give me your hand!) He holds up both hands. (Close your eyes!) No reaction. (Show me your tongue!) He does so. There was no definite weakness of the limbs of either side; the hand-grips were equal; he walked as if dazed, but with no weakness of either leg and no definite ataxia. The right side of the face moved less than the left (December 3). It was not possible to make any conclusive test for hemianopia.

In the beginning of December, the patient had a febrile attack, during which the heart sounds became impure, but no definite symptoms of pericarditis nor endocarditis were observed. On December 18, he recognized a visitor, the owner of the coffee-stand where he used to work.

The patient continued in the same general condition until the middle of January, 1907; he was quiet as a rule, but occasionally resisted while being cared for; he had no control of his reflexes. *He was quite unable to speak.*

On January 16, it was noticed that the left side of the face was continually twitching; from time to time there was a definite jerk of the left shoulder and left arm. While the left arm showed definite clonic movements, the right arm showed constant tremulous movements; *the right arm was continually occupied as if in carrying food to the mouth.* He continually made movements of the mouth as if to grasp something with his lips; he licked the tips of his right fingers. Pin-pricks over the left forehead caused vague distress.

On January 17, the irritative phenomena were most marked on the *right* side; both legs remained unaffected. The *right* arm and first two fingers of the right hand were twitching, 102 to the minute, as if a series of electric shocks were being sent through the muscles. The left arm did not show the same distinct twitches, but moved about restlessly and showed a tremor of wide range. Both sides of the face and the forehead were twitching; the head and eyes were turned to the extreme *left*, the eyes being also directed upwards.

On January 18, the left arm continued to show the same tremulous, jerky uneasy movements; the right arm remained quiet, but showed occasional jerks; the right face twitched vigorously, also the frontalis. The eyes were still directed upwards and to the *left*. No definite reaction to pin-pricks or pinches anywhere could be obtained. Plantar flexion on both sides.

The patient frowned when interfered with; when shouted at he brought his eyes into the middle line. He was able to swallow liquids with some difficulty.

On January 19, the movements showed the same character. The left arm was tremulous and restless; the right arm was quiet with an occasional decided twitch. All the muscles of the face were twitching, but the right side of the face more so than the left; the lower half of the left side of the face twitched less often than the upper half; the ears twitched from time to time. He frequently sucked his left fingers. The eyes were now turned to the right.

During the next few days the movements continued to show in general the same character and local distribution.

On January 21, there was slight left-sided ptosis. Tests of the visual field—feinting at the eye, and moving a lighted match—pointed to *left-sided hemianopia*. In the facial movements pursing and sucking movements of the mouth were very prominent. The *left leg* seemed to show more impaired sensibility than the right, but apart from this no difference on the two sides was noticed; he reacted by symptoms of distress to pricks over the face, shoulder and arm on either side.

On January 24, the patient had practically ceased to show any twitching and appeared much brighter. During the past weeks he had emaciated greatly.

On January 25, at 9.30 A.M. the eyes suddenly moved to the extreme left, moved uneasily; the eyelids were half closed; the mouth was pulled to the *left* and showed sucking movements, the fingers of the left hand fumbled the lips in a tremulous manner. The patient continued to show frequent twitching of the face, most marked on the *left side* with exacerbations in which the face was pulled to the right. No accurate test for hemianopia was possible, but while he winked when feinted at from the right, there was no such definite reaction when feinted at from the *left*. In general he reacted vaguely to pin-pricks, but made no reaction to pin-pricks over the *right* arm. He was able to walk with support. Plantar flexion on both sides.

During the following days the twitching of the facial muscles, restlessness of left arm, with comparative immobility of the right arm, continued.

On January 26, slight ptosis of the left eye was noticed. No reaction to pin-pricks was obtained over arms, legs, left forehead; he winced when pricked over right forehead.

On January 30, he frequently made restless grimaces with both eyes closed; he frequently sucked his fingers, occasionally gave a high-pitched cry.

During the next week the patient's condition was specially characterized by the facial contortions; his face was frequently twisted into a variety of strange involuntary grimaces. He occasionally uttered a high-pitched cry especially when disturbed.

On February 3, there appeared to be no hemianopia; he winked when feinted at from either side.

On February 7, his tongue seemed unable to move the food back in the mouth; he was accordingly limited to liquid diet.

On February 10, the patient showed marked convulsive grimacing, frequent yelling in a high-pitched voice, with mouth wide open, tremor and jerky movements of the *left* arm, uneasy movements of the right arm. The eyelids would close tightly, the left upper being pressed down over the lower eyelid. No satisfactory sensory examination was possible. Any disturbance of the patient provoked general facial contractions. Plantar reflex was flexion on both sides.

On February 18, he winked when feinted at from either side. *On February 26*, apparent left-sided hemianopia was observed, and this was still present on March 1. He paid good attention to objects in the right visual field, none to objects in the *left*; he only winked when feinted at from the right side.

On March 7, the patient was shouting loudly, grimacing vigorously; there was an indication of right-sided hemianopia; he winked when feinted at from the left, not from the *right*; the eyes were turned to the left, did not come to the right of the middle line. He licked the fingers of his right hand. He fumbled about equally with the two arms. He reacted to pin-pricks all over the body. He frequently yelled, the yell was a sudden loud shout ending frequently in a series of muttering sounds or in a series of choking sounds; there was frequently a tremor in the shout, and sometimes a stuttering interruption and violent movements of the tongue and lips as if for articulation.

On March 16, the patient showed definite evidence of left-sided hemianopia, which persisted until his death on *March 25*; he followed promptly objects on the right side, but did not at all react to objects in the *left* visual field. He showed frequent grimacing, the tongue was in constant motion. During the last weeks of his illness he showed extreme emaciation and progressive contracture of the lower extremities.

He died on March 25, 1907.

CASE 9. J. D., 35, right-handed; separated from second husband; tobacco worker; admitted to Manhattan State Hospital, February 11, 1909.

Family History. The maternal grandfather died from apoplexy at 71; the maternal grandmother died at 71, having been bedridden with paralysis for twelve years. A maternal uncle died from apoplexy at 62. The father died from apoplexy at 39.

Personal History. The patient, a right-handed woman, was born in 1874, she developed normally, received little education, and went out to work at an early age. At 23 she married; four months after marriage she had a miscarriage, then a still-born child at seven months, later a live child who died at seven from cerebrospinal meningitis. Her husband died in 1903, having been bedridden for over two years. There was no history of syphilitic infection, nor of secondaries. In 1906 the patient remarried, but after a year was deserted by her husband and went back to work. Before the stroke in July she had already appeared somewhat nervous and her hands would shake.

On July 17, 1908, after getting out of bed the patient fell, but did not lose consciousness; she could not move the left arm, nor leg, the face was twisted, the speech was thick and difficult to understand. She was taken to a hospital. The left leg and arm were stiff and paralyzed; the tongue deviated to the left, there was no sensory disorder. The reflexes of the left side were exaggerated; no sign of Babinski nor ankle clonus. The eyes could not be moved to the left, but the movements were free in all other directions (? left-sided hemianopia). At times her talk was delirious. Her speech improved within a week; in two or three weeks she began to move her hand and arm and in another week could move her leg. She complained of a feeling of heaviness and numbness in the left side. She required to be catheterized. Her sister noticed that the patient showed some difficulty in understanding things; she was correctly oriented. After seven weeks she left the hospital, walking with a typical hemiplegic gait. During the following four months the patient showed progressive deterioration; she would sit and talk to herself, her memory for the recent past was poor, she would put things away and forget where she had put them. She occasionally fell without losing consciousness; she complained of numbness and pains in the legs (? leg). In the middle of January, 1909, she was taken to a hospital, where she was frightened by the colored nurses; two days after admission, she seemed dazed, did not recognize her brother-in-law. She was said to have been delirious and to have talked about having trunkfuls of diamonds. She was transferred to Bellevue Hospital as she had been screaming, yelling and uncovering herself. In Bellevue she was restless and confused, disoriented and incoherent; she talked in a paraphasic manner.

On admission to Manhattan State Hospital (February 11, 1909) she cried and resisted, behaved like a child, wept and protested when

brought to the examination room, was apprehensive and only reassured with difficulty. At times she became indignant, but could hardly express herself, owing to her defective articulation, complicated by a difficulty in finding the correct words. She was a little amused when her sensibility was tested. She answered some questions relevantly but showed marked perseveration and had frequently great difficulty in finding words. What is your name? "You told me, didn't I? My name is Josie, Josephine (correct). I didn't tell you my last name" (articulated with great difficulty). Tell me about your trouble. "I'll tell you my last name; I'll tell you if you want to know—2, 3, g, do, 32 (35), that's true; I aint telling no lies; my last name is 2; my name 1, 2, my last name is fifty-five. Didn't I mistake my last name, 35. I tell you my first name, didn't I, didn't I tell you, I told you, well! have you got it? (turning to stenographer); my last name 35, I told you."

The patient at times was much irritated over her speech difficulty and, during the whole examination, gave no evidence of elation; she said, however, "I am always happy." She uttered no grandiose ideas; no delusions of any kind were elicited. She knew that she was in a hospital, although she could not find the word, "I can't think of it for a minute—of a sick people go in it, (hospital?) I can't think of it for a moment, all the sick people go into it, what is it? (she becomes irritated, the physician says hospital; she takes this up eagerly) that's it hosp, hosp, kospital, kospit-able—I belong downstairs and I came up to see you." When asked for the month she said, "this is third." Her memory was impaired, but her actual grasp of the past could not be accurately determined owing to the aphasic disorder which caused her to give absurd answers. She was conscious of the difficulty which she had in giving the facts—"I can't think, you know; my mind is a little wind, wander, you tell me, tell me questions."

Where were you born? "Was I? I must have been 244 at 44, wasn't I the same? I was born and then I suppose when I was born; I don't remember when I was born." She had difficulty in recalling the trip from Bellevue Hospital, but showed by gestures and eager acceptance of hints, that she had some memory of the trip. She had considerable difficulty in retaining a name for ten minutes. She admitted that her memory was impaired, recognized her difficulty in speaking and writing; "my mind is all right, yes it is; but if I was better, if I was better you know, I'd be all right."

Physical Status (The patient was very excitable and irritable during the examination); a well built woman with residuals of a left-sided hemiplegia, weakness of the left arm and leg, sign of Babinski on the left side; the right side of the face appeared to be a little flatter and to move less than the left on admission; on a later examination the left side of the face moved slightly less than the right. The kneejerks were much exaggerated on both sides; the gait was ataxic as

well as hemiplegic. An accurate test of the patient's sensibility was not possible; she was able to distinguish the point from the head of a pin over the face and hands and she reacted to pin-pricks over the legs. The pupils reacted poorly to light but better on accommodation. Her speech and writing were extremely tremulous and sticking. She was unable to write her name correctly and showed marked paraphasia. The patient had imperfect control of her organic reflexes; she sometimes asked to be raised but only when it was too late.

Aphasic Condition. The patient usually spoke with considerable effort; some phrases were pronounced quite distinctly and without any tremor. As a rule, she had great difficulty in finding the correct words when talking spontaneously. She would become tearful and irritated owing to this difficulty. She was able to name some objects but had difficulty with others and showed marked perseveration. She was able to repeat one line of poetry correctly but, when given another line to repeat, she uttered a mixture of all the names for objects which she had previously been asked for. She recognized the names of objects and carried out correctly simple spoken orders, such as, "give me your right hand."

She was unable to carry out a command if a trifle complicated.

"Put your left hand on your right ear." She said, "your right hand you told me, I put it on the left hand didn't I, my left hand on my right hand—what did you say? left my arm my left side." She was unable to carry out the order. She would read some words well, but would become hopelessly confused over others, even though very simple. She immediately read correctly "hand" and "horse." When shown the printed word "pig", she said "that is p backwards there now, take it." She was able to spell "cat" correctly but spelt "dog" d-a-c. She was unable to write letters named. In writing her name she began it correctly, repeated one syllable and then wrote something which was not at all like her name. In tests for apraxia the patient was clumsy but showed no clean-cut apraxia.

During February and March the patient appeared to become slightly more unsteady, but otherwise showed little change. She was much more difficult to examine than on the day of admission and would become violently irritated if an attempt was made to look at her pupil; she would frequently get into a state of great confusion and irritation over her hair and the bedclothes. On one occasion she asked anxiously and tearfully "Where is my neck? I can't find it on one side or on the other." When her hand was put on her neck she excitedly said "No, no, no." After groping about for a minute or two, she suddenly laid hold of her ears and gleefully exclaimed "That's all right, I have my neck now."

The patient was observant of what passed in the ward, called the nurse's attention to little incidents. She usually called other female patients "he" or "she" and addressed the physician as "ma'am."

Treatment by mercury inunctions and increasing doses of potassium iodide caused no change in her condition.

On April 15, in the morning she pushed away the drink which nurse offered to her and appeared to be dazed. During the morning she kept picking up the clothes with her left hand and occasionally put up her left hand to her face. When examined at 10.25 A.M., she lay with head and eyes turned to the left, the forehead was twitching on both sides, the right ear was twitching, not the left; she made inarticulate sounds, during her attempts at articulation the left face moved less than the right. The right arm was limp; she moved the left arm freely up to her face. While being examined she began to vomit without much retching; her pupils showed no reaction to light.

At 10.45 A.M. the right forehead and ear were twitching, the mouth was pulled to the left. She appeared to smile during the examination; the right side of the face moved less than the left. There was no reaction to pin-pricks on the right side of the face, on the right hand nor on the right leg. She cried when the left face was pricked, promptly withdrew the left hand when it was pricked, made defensive movements when the left thigh was pricked but did not react to numerous pin-pricks over the left leg. The right leg was twitching, the foot jerking rhythmically about ninety-six times per minute. The plantar reflex was extension on the left side, could not be determined on the right side.

At 11.15 A.M. the head and eyes were turned to the left, the eyes never came to the right of the middle line. The patient did not react to fainting at the eyes from the right side, but reacted when fainted at from the left.

At 11.35 A.M. the right arm and right leg were twitching, the right face was at rest, the head was turned to the right.

At 3 P.M. the patient was lying quietly on her back with her head and eyes turned to the left. She moved her left hand restlessly to and fro. An attempt at ophthalmoscopic examination was vigorously resented and she used both her arms freely.

On April 16 the patient was much more alert; she was very irritable and for long periods would shout out "Leave it, leave it." In fumbling with the clothes she used her left hand freely. Her head was turned to the left as a rule, but she occasionally moved it to the right and seemed to take interest in objects in the right visual field (on the previous day she did not react to fainting from the right).

On April 17 she was very irritable but at times laughed and chuckled and no weakness of either side of the face was observed. She vomited her breakfast without any retching.

On April 30 she vomited in the morning and, when interviewed later, she was extremely dull. During May the patient became progressively weaker.

May 20. For several days the patient had had her head turned to the right side and talked as if addressing imaginary persons. At this

date she showed what were apparently definite reactions to hallucinations in the right visual field. She paid no attention to a hand held in the left field, but saw a hand held in the right field. During the following day the patient lay with her head slightly retracted and her eyes directed to the right. She looked about in the right field as if in answer to stimuli. She paid no attention to any objects shown in the left field. In the afternoon her arms and legs twitched for a short time. There was no difference of reaction to pin-pricks on the two sides. She reacted promptly when feinted at from the right, did not react when feinted at from the left. During the following week the patient showed practically the same condition. She appeared to react to hallucinations in the right visual field. She would look excited and say "I see them, I see them," and would stretch out her hand, left or right, as if towards some interesting object in the right visual field. When pricked on the left hand by the physician on her left side, she would indignantly tell the other physician on her right side to go away. During June and July, the apparent left-sided hemianopia continued and the patient only paid attention to what happened in her right visual field and appeared to react to hallucinations in that field. Any attempt at physical examination was violently resented by the patient.

The patient was restless, irritable, screamed loudly whenever cared for, required to be spoon-fed, took her food well. It was never possible to do lumbar puncture.

In the second week of August, a deep bed-sore developed. She became progressively feebler, broncho-pneumonia developed and she died on August 23, 1909.

CASE 10. G. W., 41; admitted to Manhattan State Hospital, April 24, 1908.

Family History. Negative; information was meagre.

Personal History. The patient was born in Germany in 1869, received a good education, graduated from the gymnasium; he later became a cigar-maker, but for several years worked as a ship-steward. He came to America in 1891. He married at 24 and had two healthy children; he was divorced, then remarried. He was temperate in his habits; previous to admission he had stated that he had a hard chancre in 1892.

In April, 1905, the patient began to have some trouble in rolling cigars with his right hand, as his right arm would shake so much; owing to this difficulty he was unable to support himself.

In February, 1907, he fell down some stone steps and struck his head: "He was unconscious and delirious and lost his speech for three days" (report from the hospital). He was discharged after two weeks in the hospital, the diagnosis was "cerebral syphilis, general paralysis;" "left pupil larger than the right, no reaction to light, slow on accommodation; no nystagmus, no facial palsy. Slight

tremor of the right hand, none of the left. Deep reflexes active, no bladder or rectal trouble, no Romberg."

On his return home his wife noticed that he could not write with his right hand nor could he use his knife. She noticed no trouble with his right leg. His speech was thick; his memory did not seem to be as good as formerly. He now began to suspect his wife of infidelity. He was restless and sleepless, would talk at random, blamed his wife for his sickness.

He was readmitted to the hospital on March 31, 1908, complaining of headache of long duration, diplopia, weakness of the legs, trouble with his water. He was not able to give a good account of his symptoms, but said that he had first noticed twitching of the right arm when he attempted to use it, and later twitching of the right leg. He said that for two years he had considerable weakness of both legs. The right arm and the right leg showed slight weakness. On movement of the right arm and fingers very marked tremor was observed, but no sensory disorder was demonstrated. Slight nystagmus; slight left-sided ptosis; slight weakness of the left-side of the face; the patient complained of ringing in the left ear. The pupils reacted defectively to light and on accommodation, the left was the larger and reacted less than the right. Optic discs clear.

During his short stay in the hospital the patient had attacks of vomiting; on one occasion he had to be catheterized. The patient was discharged after three weeks in the hospital, four days previous to his admission to Manhattan State Hospital.

On admission, April 24, 1908, the patient was dull but adapted himself to the routine of the hospital; he was accessible to examination, became somewhat tired after an hour. He had a fair idea of the environment, gave the date as May, 1908. On a later examination he gave the day and the month correctly. He was somewhat depressed, complained of the attitude of his wife toward him, stated that she was his common-law wife (she was able to show a marriage certificate). He talked in a vague way of seeing and hearing things in dreams, but otherwise no evidence of hallucinations was elicited. He made confused and contradictory statements as to the ages of his children; at one time he said that his mother was dead, again that she was alive. He made many other contradictory statements, but was able to give a fair outline of his life and of the various incidents of the psychosis. He admitted having had a chancre when over 20. He had a fair memory of the recent past, showed somewhat defective retention of tests. His grasp of general information was quite satisfactory. He made some mistakes in simple counting. He had insight into his physical disorder and referred to himself as being a little weak in the head.

Physical Status. A well built and well nourished man; slight weakness of the left side of the lower face; no weakness of the occipito-frontalis; slight drooping of the left eyelid; slight weakness

of the right hand-grip; slight weakness of the right leg; cutaneous sensibility unimpaired. The eyes moved freely in all directions; there was some nystagmus present. The pupils were unequal, the right reacted sluggishly to light, well on accommodation; the left did not react to light at all and reacted slightly on accommodation. The knee-jerk was slightly more active on the right side than on the left; on the other hand the deep reflexes of the left arm were more active than those of the right. Plantar reflex; flexion on both sides. Coarse tremor of the tongue. When the patient grasped an object with the right hand, a very coarse tremor of the limb ensued. He showed a marked intention tremor in taking hold of a glass of water with the right hand. There was a marked coarse tremor on movements of the right leg. Slight tremor of the left hand and fingers, none of the left leg. His speech was stumbling and ataxic and was much more defective when under the influence of emotion. Marked lymphocytosis of the cerebrospinal fluid.

On June 7 the patient had an epileptiform convulsion.

During the summer there was practically no change in the patient's condition.

On November 17, the patient had a general convulsion lasting fifteen minutes. During the following day he was extremely dull and quite irresponsive.

On November 20, the patient had not yet recovered his previous level. He appeared to be extremely stupid, could only utter inarticulate sounds, did not appear to understand some questions; he could not name objects but appeared to recognize the names when given to him. The convulsion had not left any motor residual.

On November 23, he was able to say a few words and name some objects, and during the following week his speech improved considerably. It was, however, more ataxic than before the convulsion.

On January 29, 1909, epileptiform convulsion followed by a short period of confusion. In March the physical condition of the patient began to become much worse. By the end of April he was unable to walk without assistance. His speech was at times very difficult to understand.

On May 7 he had another convulsion. After June he was confined to bed owing to his ataxic gait.

The general neurological status (July 4, 1909) was practically the same as on admission. At this period the patient was talkative and decidedly euphoric; he said that he was happy and strong, that his head was quite strong; he denied that he was ever suspicious of his wife. He was correctly oriented, gave an outline of his life without definite dates. His memory of the onset of the nervous symptoms was inaccurate; his retention of tests was very poor; no insight into his deteriorated condition.

On August 7, the patient complained of stiffness of the right hand, and immediately after this had a general convulsion of five minutes'

duration. For the following two days the patient continued to have twitchings, which were more continuous on the right side than on the left; he did not recover consciousness; died at 12.45 A.M., August 9.

CASE 11. M. T., 38, laborer, right-handed; admitted to Manhattan State Hospital, June 24, 1907.

Family History. A sister was said to be peculiar; otherwise negative (information very meagre).

Personal History. The patient was born in England in 1868, was a healthy child, developed normally, received a simple education. After leaving school he worked with a brass-molder at first, then as a miner, a longshoreman, a bartender. No history of syphilitic infection could be obtained, and there was no external evidence of it. He married in 1890, and came to America about 1893, where he worked as a bricklayer's laborer. His wife had first a still-born child, then two children who died at three months, six weeks respectively, then five healthy children with one miscarriage due to an accident.

The patient had occasionally indulged in alcohol to excess, but for the three years previous to admission he had been quite temperate; he had been a healthy man and his wife knew of no symptoms previous to December, 1906. During Christmas week he had a bad cough, and on Sunday he suddenly felt a severe pain in the forehead as if he had received a blow; he went to bed and the doctor diagnosed "grippe." He had been working vigorously the day before. On December 31, at night, he imagined that he saw beautiful processions, but did not hear any voices; he was quite clear in his grasp of the environment. For a night or two he had similar visual hallucinations, but none during the daytime. He remained at home for several weeks (duration uncertain) feeling out of sorts but was not completely confined to bed; he then went to look for work and after some difficulty he got a job.

In April, one day, the left leg became weak, the left arm began to twitch, the face remained straight (wife's account); there was no speech nor swallowing difficulty. He walked home dragging his left leg, the left hand continued to twitch for several days, and he complained of a warm feeling in the left leg. When the twitching stopped there was no residual weakness; he went to work, and was quite efficient (according to his wife) but several times while working the left hand would begin to twitch and he would feel weak all over; plunging the hand into cold water seemed to stop the twitching, according to the patient. These attacks of twitching left no residual weakness. He told his wife that when he had the twitching little red lights would come in front of his eyes. On June 17, after working six hours, the left-sided twitching came on, he felt very weak and went to bed; the left hand continued to be weak and to twitch so that he went to Bellevue Hospital on June 19; when visited on the 23d, the twitching had stopped, and he appeared to be in his usual condition, according to his wife's statement.

He was committed to Manhattan State Hospital, as the physician at Bellevue found him "excitable and emotional, readily confused and perplexed; he declares that he sees shadows and peculiar motions of objects which he knows to be still; he shows some memory defect for recent events. His left arm and hand show some loss of power."

On admission to Manhattan State Hospital, June 24, 1907, the patient was very agreeable when interviewed, he did whatever he was asked to do, he accepted the environment without comment, and seemed quite contented with the treatment he received. When examined he answered questions promptly and relevantly; showed no disorder in his conversation; he told all his symptoms and said they were due to an attack of grippe at Christmas time. He said that about four months later, after he had been working only two days, "I imagined by my eyes that I saw fire and that those fingers (left) went that way as if the nerves closed them together." He had no absurd ideas, but was abnormally cheerful and optimistic in view of the actual environment, the nature of which did not seem to impress him; he did not at all realize the serious meaning of his physical symptoms and talked of a good job, which he expected to get soon. He had neither delusions nor hallucinations, but gave a retrospective account of seeing fire during the attacks of weakness; this visual disorder was not present in the earlier attacks, but during the latter attacks he imagined he could see three or four little round blazes about an inch in size right in front of him. They seemed to be about a yard distant, they did not interfere with his sight; he could drive in a nail even with them in front of his eyes; this phenomenon would last about an hour. He could only specify two attacks in which this phenomenon was present. One night in June, shortly before admission to Bellevue, when he went to the physician's house, all the people in the waiting-room seemed colored (they were really white). In Bellevue he had imagined that he saw colored persons coming to him, but when they came up to him the "reflection" cleared away and he saw them white. He gave the date correctly, knew exactly where he was. He had a fair memory of the main events of his life, but became confused and contradictory in his dates, showed glaring discrepancies which he could not correct even when they were pointed out to him; he married in September, 1890, came to America in May, 1892, his wife had three children and one miscarriage before he left. He had a good memory of the events preceding admission to the hospital, but did not remember having had a conversation with the examiner three hours previously. He retained the various tests well. His store of general information was satisfactory.

He had no insight into his memory defect, and denied that there was any mental impairment; he did not realize the seriousness of the rather striking neurological episodes.

Physical Status. A well-built man of 38, with no anatomical stig-

mata, and no external evidence of syphilis; he denied syphilitic infection, although he appeared quite frank about his sexual relations. Knee-jerks very much exaggerated, the left apparently somewhat more so than the right, but both were so active that it was difficult to come to a definite conclusion; Achilles-jerks exaggerated, the left more so than the right; the triceps reflexes much exaggerated, more so on the left side. The skin reflexes were active; plantar flexion on both sides. No motor weakness; gait normal; no sign of Romberg; slight ataxia in touching the nose with finger-tip, but no difference on the two sides; tremor of fingers and tongue. No disorder of sensibility. Spontaneous speech slow and deliberate; marked tremor, sticking and distortion in pronouncing the test phrases. Writing tremulous with occasional distortion of words, although he knew how to spell them, *e. g.*, "ateraley birgade" (artillery brigade).

Slight external strabismus of left eye with a faint variable indication of ptosis; pupils irregular, unequal, L. $5\frac{1}{2}$ mm., R. $3\frac{1}{2}$ mm., both show practically no reaction to light, both react defectively on accommodation, especially the right. No hemianopia. Marked lymphocytosis of the cerebro-spinal fluid. No disorder of sensibility. Internal organs satisfactory.

August 4, 1907. Since admission the patient has shown little change. He accepts the environment philosophically, although he has said once to his wife that he was disgusted to be with crazy men; he does not at all realize why he was sent here. Although he is rather anxious to leave, he finds it convenient to stay for a few weeks until his wife receives the proceeds of a sick benefit.

His physical condition is unchanged; there have been no neurological episodes and no headache except after lumbar puncture.

On August 30, the patient left the hospital. He was able to work for a few months, but later found no occupation. He had several attacks of twitching of the left hand and leg without loss of consciousness. He became somewhat forgetful and childish; he frequently came home cut and bruised, having apparently fallen. He was taken to Bellevue Hospital in April, 1909; there he was excitable and uneasy, now elated, now depressed without cause.

On re-admission to Manhattan State Hospital, April 6, 1909, the patient showed very little deterioration from his condition when first admitted to the hospital; his orientation was good, he had no absurd ideas, but showed the same cheerfulness as on first admission; his memory showed several discrepancies, *e. g.*, married at 20, 18 years ago, was now 40. He showed the same want of insight into the seriousness of his condition, denied that he was sick, thought that he could do his work better than ever.

Physical Status. Knee-jerks exaggerated, the left more so than the right; a tendency to clonus of the foot on the left side; plantar flexion on the right side, doubtful reaction on the left; no weakness

of the limbs of either side; slight weakness of the left side of the face; no sensory disorder, but the patient did not localize touches very accurately; tremor of tongue, fingers and facial muscles; sticking speech without distortion of test phrases; the writing was much worse than on first admission, he wrote "Medodist Epistal" "Tirth Riding Bigade." Pupils unequal (left greater than right), did not react to light at all, reacted sluggishly on accommodation.

During the summer the symptoms showed no progression.

On August 18, 1909, at dinner, the patient did not eat; he grasped the *left hand* with the right; he said that he felt all right and he was able to walk back to the ward. When seen after dinner he was still holding the left wrist tightly with the right hand. At 2 P. M. the left arm was continually twitching; he tried to control this with the right hand. He talked in an unintelligible manner, continually repeated "the bones wont blong kelasp." He moved his legs restlessly. His lips and tongue were in continual motion. He seemed to react less to pin-pricks over the left arm than over the right. During the whole attack he perspired freely. When examined at 7.30 P. M. no weakness of the left hand was demonstrated, but there was some impairment of sensibility. He did not feel light touches on the left hand, shoulder or face, whereas he felt them on the right hand and face. He did not recognize a watch or knife in the left hand; he immediately recognized them in the right.

On August 19, the patient could walk unassisted, but the left leg seemed slightly stiffer than the right; the left hand grip was a little weaker than the right. On August 28, lobar pneumonia of both lower lobes developed, and did not completely clear up; in September, the symptoms pointed to abscess of the lung. His mental condition showed no change; he remained quite clearly oriented, felt happy and contented, was optimistic as to recovery, said that he did not need to work, that he had enough money to keep him; his memory was no worse than on admission.

Until the day of his death the patient remained absolutely clear, and his memory showed no progressive impairment.

He died on November 5, 1909.

CASE 12. F. S., 54, admitted to Manhattan State Hospital August 4, 1909.

Family History. Negative.

Personal History. The patient was born in Dublin in 1855, developed normally, received a good education, became an expert tea-taster; he was a quiet, hard-working young man with an even temper. About the age of 20, he was thrown off his horse while hunting, was unconscious for several days. According to his account he had paralysis of the *right* side for three months; he lost his sense of smell and of taste and became deaf in the right ear. He had to give up his occupation and later came to Canada, married in 1877, then came to New York and worked as a bookkeeper. His disposition must have

changed after the accident, for, ever since his wife knew him, he was rather peculiar and violent-tempered. Not long after marriage his wife reproached him for coming home late; he took out a revolver and fired into the wood-work of the room. He would occasionally disappear at night; he would sometimes not speak to his wife for days; at other times he would treat her outrageously. He did not drink to excess and was quite tolerant of alcohol.

In 1896 (approximately) the patient had two epileptiform convulsions, after which he was in bed for a week. He behaved in a somewhat boyish manner with his male attendant. After this he was somewhat dull at business, fell asleep easily. He had epileptiform convulsions at long intervals, five in all, the last in 1908. For seven years previous to admission he had minor attacks; during an attack he would laugh foolishly, turned purplish white, tended to fall, his mouth worked, he would try to talk and when able to articulate would utter nonsense. In half an hour the patient would be as well as before the attack. He had sometimes three or four such attacks in one day. During the two years previous to admission, he was supported by his wife and accepted the situation placidly. His memory became impaired, he began to be careless in his dress; finally his gait became slightly altered and his speech was affected. At night he would behave peculiarly; he would light matches under the sheet in bed and would search under the bed with matches. Up to two months previous to admission, he was able to keep his wife's household books, but at the end he was no longer able to do this.

On admission (August 4, 1909), the patient behaved in a very gentlemanly manner and showed no peculiarity of behavior. He told spontaneously about his sickness and said that he was "losing active control of my brain, unconsciously, I should say, because I never know now-a-days whether I have had it or whether it is coming. My trouble is my want of memory and at times I am incapable of doing mental work, and lose all consciousness of existence." He gave a very fluent story of his life but some of his statements were false and in some of his dates he showed glaring discrepancies. He denied that he had any children; as a matter of fact he had a daughter alive. He denied syphilis, admitted gonorrhea at the age of 17. His grasp of general information showed some striking defects; he said that the battle of Waterloo was in 1854. His retention was rather poor.

Physical Status. No physical stigmata; no evidence of syphilis, nutrition good; knee-jerks and Achilles-jerks active, the right knee-jerk a trifle more active than the left (not confirmed on later examination); no motor weakness; no impairment of sensibility; complete anosmia; he was able to differentiate salt and sweet solution, but on later examination his sense of taste was found to be very defective; hearing in the right ear was impaired; pupils unequal, slightly irregular, reacted briskly to light but with a limited excursion, well on accommodation; very slight tremor of tongue and fingers; speech

slurring and sticking without much distortion of the test words; marked distortion of written words without tremor, *e. g.*, mesodeth episcopal (Methodist Episcopal); gait somewhat deliberate but otherwise not peculiar; no sign of Romberg; abundant lymphocytosis of the cerebro-spinal fluid; no disorder of the visceral organs.

In further interviews the patient varied considerably the story of his life. He soon found detention irksome and harped on going back to business.

On September 14, the patient suddenly became unsteady in his gait. When questioned by the attendant, he talked incoherently, he was dull and confused, he muttered a series of meaningless syllables. After an hour and a half he was in his usual condition. No other attacks were observed during the rest of the year.

In October he was allowed to go home, but, as he was quite unreasonable and difficult to manage at home, he was brought back in March, 1910. His wife reported that he would wander round the house at night, he would strike matches, look under the bed, shake the pillows; he would fail to recognize old friends; at times he could not find his own room; his memory of recent events was very poor.

On readmission the patient was noticeably more dilapidated than when discharged. He took his detention much more easily; his memory showed still more glaring discrepancies; his retention was very poor. At night he would be a little more confused and disoriented, but during special observation no minor attacks, similar to those described by his wife as occurring previous to admission, were observed. He never made any grandiose claims. The pupils now reacted very slightly to light, but well on accommodation; otherwise the neurological status was practically unchanged.

During the summer the patient became more slovenly and dilapidated.

On November 10, he fell on the floor unconscious; no twitchings were observed; sign of Babinski on both sides. The cerebro-spinal fluid was examined by the Noguchi modification of the Wassermann method and gave a positive reaction. The patient did not recover consciousness, and died on November 19.

CASE 13. P. D., 47, laborer, right-handed; admitted June 29, 1906.

Family History. The parents lived to an old age. No further information could be obtained.

Personal History. The patient was born in Ireland in 1859. He received very little education, but learned to read and write. Little information as to his early life was forthcoming; he himself said that he had been in the English Army for six and a half years and he talked of having served abroad. He came to America in 1883 and married in 1898. He was a temperate man; he denied syphilitic infection, and there was no external evidence of it. His wife had one child in 1899, then a series of miscarriages due to prolapse of the uterus.

The patient was absolutely healthy until February, 1905, when he

was struck by a trolley car, and was dragged a considerable distance; he received a severe scalp wound, and remained unconscious for four days. After two weeks he was able to get up. No weakness of either side was observed; he was able to speak quite well; he showed no delirious symptoms; for some time after the accident he was irritable and had severe headache; he lost all sexual desire. In June, four months after the accident, he returned to work and seemed absolutely efficient for some time.

Early in 1906, he began to show mental symptoms; he became forgetful, had especial difficulty in recalling names, was slightly peculiar in his talk, seemed to know what he wanted but could not make his tongue go right; he was impatient if the others did not at once understand. He was inefficient at work, and rather sulky in disposition. At night he would be heard talking as if expostulating with his fellow workmen; he heard their voices talking to him, and would even go to the door to see them.

On March 21, 1906, after confused behavior lasting fifteen minutes, he gave a cry, fell on the floor and had a series of three general epileptiform convulsions, beginning in the muscles of the face. After the second fit the whole right side was helpless. He was taken to a hospital where he was unconscious for four days. When he became conscious he spoke thickly and used wrong words, understood what his wife said, but was unable to express himself and was irritated by the fact that his wife did not understand him. In hospital, in addition to the right-sided hemiplegia it was noted that the right pupil was dilated, and that the right eye was not closed during sleep. He returned home after seven weeks, and still showed some paraphasia, but no apparent weakness of the right side. In the second week of May he went to work, but after ten minutes on turning round on a plank he lost his balance, fell and fractured the base of his skull. That evening in hospital he was wildly excited and remained delirious for several weeks; when the delirium subsided he was confused, stupid and demented; he answered questions apparently at random, sometimes became violent without apparent cause; he showed well marked euphoria.

On admission to Manhattan State Hospital (June 29, 1906), the patient talked to his fellow patients in a somewhat confused manner, at times he laughed, at times he cried without apparent reason, and frequently he got out of bed and wandered around in an aimless manner. When interviewed he was good natured, and much interested in the typewriter. He occasionally answered a simple question relevantly, but as a rule he did not seem to understand the questions, and answered them in a quite irrelevant and sometimes meaningless manner with marked perseveration.

Have anything to eat to-day? "Oh, yes; breakfast."

What did you have for breakfast? "I generally have bread and butter and tea."

What is your name? "Spit (a patient is spitting)—spit out."

Who are you? "Spit—no, I don't spit."

Tell me what you are? "P. D." (his name).

What is the name of this place? "Spit clean out is the way they do."

He showed similar perseveration on the words "rough" and "Irish." Is it summer or winter? "Yes, that is the way—they would call that rough."

Owing to this aphasic difficulty of understanding and of expression it was impossible to ascertain definitely his orientation, the state of his memory, his grasp of general information, and whether he had any morbid ideas or not.

Physical Condition. The patient was a well nourished, robust man, with no anatomical stigmata, and no evidence of syphilis. There was a linear scar over the right eye and over the right occipital region with a slight depression of the skull. The pupils were unequal, irregular, did not react to light, reacted extremely defectively on accommodation. He walked in an ataxic manner. Absence of knee-jerks and Achilles-jerks; speech slow and hesitating; writing very tremulous and with marked distortion of words. He wrote his name as Patr14y (Patrick). There was coarse tremor of the fingers. The hand grips were equally powerful; movements of the face were symmetrical; there was no weakness of either leg. No sign of Babinski. Sensibility to pain was apparently normal. He did not co-operate satisfactorily when his sense of touch was tested.

One week after admission the aphasic symptoms were less marked; the patient answered more relevantly, and did not show the same perseveration.

On July 10, at night, he had several convulsions which were confined entirely to the right side, the face being especially affected. *On July 11*, he showed complete inability to talk; his lips moved, and he made futile efforts to talk; it was not noted whether he understood simple commands. There was weakness and impaired sensibility over the right face and right arm, the latter being rather spastic; the right leg was not affected. The duration of these symptoms was not noted.

On July 20, he had a convulsion which seemed to leave no residual weakness; the condition of his speech was not specially noted. *On August 1*, at night, his right arm was noticed to be rigid, but no convulsion was observed; in the morning the right hand was weak and spastic. Examination of his speech on this date disclosed great difficulty of expression; sometimes his answers were unintelligible, usually they were irrelevant, and frequently consisted of "I couldn't tell you." He was unable to name objects, muttered unintelligible syllables; he recognized the correct name of a pencil when he heard it.

On September 17, he had a series of convulsions, during which the movements were limited to the right side; between the convulsions

he was conscious. For some time after the last convulsion he was unable to speak. His gait became worse so that in October he was put to bed. On October 3, his condition was noted as follows: The patient apparently is unable to comprehend questions, and his answers are entirely irrelevant; when shown different objects, he calls them all a "whiska" and when asked questions his answer is always the same.

An examination of the aphasic condition was made on October 25. During the interview the patient laughed rather explosively from time to time; at other times, usually when he had tried to say something, he became very much irritated, shouted angrily, ground his teeth. He frequently did this when cared for by the nurses. He was quite unable to express himself, although he had occasionally been heard to make a definite remark, e. g., "What the Hell brought you?" He said "yes" and "no." In answer to questions he uttered unintelligible jargon, e. g., "bay - or - one - - - one - ef - one seef." He appeared to make great efforts to express himself, and sometimes was much irritated over his inability to do so. He could not be brought to repeat phrases or name objects or pictures.

He did not recognize spoken nor printed orders, nor words. In using objects he showed some asymbolia, tried to scratch a match upon a candle, fumbled with a pipe and was about to put it in his bed-urinal, put the thumb and index of the right hand in a peculiar manner into a glass of milk held in the left hand.

Physical Condition. (October 25): Slight general spasticity; kneejerks and Achilles-jerks absent; pupils small, unequal and with no reaction to light nor on accommodation; right-sided ptosis. Slight weakness of the right side of face. There was no weakness of the right hand-grip (on the previous day some slight weakness seemed present), but he used the right hand spontaneously less than the left, and was slower in innervating it although the final grip showed no weakness; he had much more difficulty in picking up a pin with the right hand and occasionally let objects fall. He could hold a pen and wrote an unintelligible series of tremulous and distorted letters, whereas on admission he had been able to write an approximation to his name. He showed very little confidence in the upright position, although he was only slightly unsteady; sign of Romberg was present. He walked with his feet widely separated and his gait was spastic rather than ataxic. Tremor of hands and slight tremor of tongue. Slight general diminution of pain sense, except over face. Abundant lymphocytosis of the cerebro-spinal fluid. No disorder of the internal organs.

On October 26, he had six convulsions; the last two were right-sided, the others general; after the convulsions his general condition was unchanged.

The extent of the aphasia was not constant. On October 27, he made an occasional appropriate reaction to a spoken demand, but uttered nothing except "red - red" and a few simple words such as

"this," "I have"; on October 29, he gave no sign of understanding spoken words. On October 30, he made an occasional correct reaction, e. g., closed his eyes on demand, and said "that's right" when his name was mentioned. On November 4, he made no remarks to his wife but said, after an effort, to the physician "that is-my-wife," and two days later when asked how he was, he answered explosively "first class."

After November he was not heard to utter anything beyond "yes," and an occasional poorly pronounced "son of a b - - -."

The minimus and fourth finger of the right hand began to show some contracture in November. On December 4, the patient had four convulsions with twitching of the eyes and right side of face (legs not observed); after this attack there was transitory limpness of the right leg and arm.

In December, the contracture of the fingers of the right hand had increased, and the patient would open it with the left hand after considerable effort. There was no weakness of the right hand and it was withdrawn from pin-pricks. Plantar flexion on both sides. He put out his tongue when asked by gesture to do so; he carried out no spoken commands, showed no sign of understanding any words.

On February 1, 1907, he had continuous convulsions in the morning with jerking of the right extremities. On February 21, he had several general convulsions, after which the right face was twitching, and the right arm and leg did not react to pin-pricks while the left did.

During the Spring the patient became progressively feebler; a deep bed-sore developed; the right leg was much drawn up, the left was extended; both arms were held flexed on the chest, the right more rigidly than the left; the face was pulled to the left. The plantar reflex continued to be flexion on both sides.

He died on May 3, 1907.

CASE 14. M. H., 46, right-handed, widow; admitted to Manhattan State Hospital, September 5, 1903.

Family History. Both parents had asthma; otherwise the family history was negative.

Personal History. The patient was born in Ireland in 1857; came to the United States at four, received a meagre education, worked as a domestic servant. In 1878 she married an alcoholic painter, had four children, two of whom died in infancy. The patient had no miscarriages, there was no history of infection. The husband died in 1886. The patient worked in a laundry steadily till 1901 and was then supported by her daughter. She was a cheerful, healthy woman. During the year preceding her admission the patient had shown mental symptoms. She was fretful and irritable, would repeat herself frequently in conversation, tended to exaggerate. The menopause began early in 1903, and during that year the patient complained of severe headaches, which occurred once a month.

On July 10, 1903, the patient had a slight *right-sided* attack; at 6 A.M. she was found sitting on the bed moaning; she said she had a cramp in her right leg and hand, the hand and fingers were flexed and seemed to be stiff for two or three minutes. After being rubbed she seemed quite well, and after one hour she was able to do her work as usual, using her right hand freely.

On August 31 she complained of being dizzy. After lunch her right arm seemed to be again cramped and flexed as in the former attack. She said "Look at my poor hand." She wandered about as if confused and was put to bed for a couple of hours, her right hand and arm seemed to be lifeless; later in the afternoon she was able to use the arm; she appeared to be dazed; talked of being in a strange house; she vomited several times. Next morning she seemed to be quite clear, but during the forenoon she became delirious, screamed as if in fear, was very much excited; she was able to use both hands freely. She was taken to Bellevue Hospital. There she was disoriented, misidentified those about her, was rambling in conversation, talked of seeing imaginary objects.

On admission to Manhattan State Hospital (September 5, 1903) the patient was quite composed and reacted quite normally to her environment. Her mood was one of complacency; she frequently laughed in a rather simple manner; there was no evidence of hallucinations and the patient uttered no absurd ideas. She gave a clear and fairly coherent account of the onset of the sickness, telling of the paralysis, the arrival of the priest and the doctor; she knew that she had been taken to Bellevue Hospital. "There they said I seen something like rats or squirrels or something and that I hollered, I didn't know where I was when I went to 26th Street. The next day I was all right." She could not tell the name of the place but said that it was "for people who don't know nothing." She knew that she was in New York, gave the year as 1891, gave the day of the week correctly and said that it was the middle of September. She was able to give a fair account of her life—came to the United States at five, went to the Sisters' School until thirteen, then lived at Chicago with her parents, worked in an hotel, married at 22 in January, had her first child two days before Christmas. She had four children, no miscarriages, no still-births. Her husband had died seventeen years previously. She denied any venereal disease or secondary symptoms. She had a good memory of events up to the onset of the psychosis, remembered the arrival of the doctor and priest, but had completely forgotten the events of the following two days until she came to herself in Bellevue Hospital. "I then got up and went around and I thought it was something like a squirrel running around biting a piece off my skirts." The patient had a satisfactory grasp of the trip to the hospital. She was unable to retain a test number for two minutes; she could not retain the name of the physician or of the hospital although it was repeated again to her. Her grasp

of general information was extremely poor. She could only say the first part of the alphabet, could not name any large cities in the United States, was unable to do five times six, although she did one or two simple multiplications correctly. The patient realized that her mind had been affected in Bellevue Hospital and was willing to wait for her daughter to come and take her home. "I was sent here but I aint crazy, if I was, I would be hollering and carrying on."

Physical Status. The patient was a well-nourished and well-formed Irish woman with no external signs of syphilis. The knee-jerks were both exaggerated, the Achilles reflex well marked; the triceps reflex was well marked on both sides, the *right* seemed to be a little stronger; the plantar reflex was very faint on both sides, scarcely any movement of the toes being elicited. The tongue deviated slightly to the right; the right hand-grip was strong but perhaps a trifle less than the left; the facial movements were symmetrical; there was no weakness of the lower extremities; the gait was unimpaired; there was no sign of Romberg. The pupils were small, equal, reacted to light sluggishly and within narrow limits, reacted more promptly on accommodation. Marked fibrillary tremor of the tongue, occasional flickering of the facial muscles, fine tremor of the hands. As a diagnosis of hysteria had been made previous to admission, a very careful sensory examination was made so far as her somewhat unreliable answers made it possible. There was general diminution of sensibility to pain; over several small areas, two inframammary, two scapular, there was complete analgesia and anesthesia with dulling of the temperature sense. The speech was slurring with distortion of the test phrases. "Third ridin billery betrade." "Elec-crisity." She wrote her name with difficulty, distorted a test word beyond recognition.

During the first two weeks in the hospital, the patient showed practically no change. Her retention continued to be very poor; she showed some glaring discrepancies, when asked to give exactly the data of her life. She gave the year as 1892, said that she was 56, born in 1857. She could not correct this discrepancy,

On September 27, at 6 A.M. the patient was found sitting on the edge of the bed; the right arm was lying limp; she made an effort to speak but could not be understood. She beckoned to the nurse with the left hand. No twitchings were observed. The patient lay quietly in bed; she appeared to take no notice of anything going on. She showed a persistent tendency to look to the right. At 9.30 A.M. when examined, the patient gave no evidence of understanding commands and made no attempt to speak except when pricked by a pin. She then said "Oh, sir!" Her right arm was limp; the right side of the face was smoother than the left; the forehead wrinkled symmetrically on frowning. She was able to walk slowly without any dragging of either leg. There was marked diminution of the pain sense over the whole of the right arm, no diminution over the left arm; no difference in the reaction of the two legs could be made out. The deep reflexes

were more active on the right side than on the left. No sign of Babinski. The eyes were turned to the right, and showed some nystagmus. The pupils showed a faint reaction to a strong light; the patient did not wink in reaction to feinting from the right side, but reacted to feinting from the left. At noon the patient spoke a few words and made fumbling movements with her right hand. In the afternoon she recognized her daughter and named her correctly.

On September 28, there was no definite residual of the weakness of the right hand, but the patient at mealtime used the left hand, in preference, and fumbled with the right hand. The right side of the face showed fewer wrinkles than the left. The tongue deviated to the right. The right arm appeared to be somewhat less sensitive than the left. The head and eyes were no longer turned to the right. When brought into the room for examination, she said "Rought me in," but made no further effort to speak spontaneously. She showed no evidence of understanding spoken commands except when told to sit up. She did not pick out any objects named, did not appear to recognize such sounds as the ringing of a bell, the ticking of a watch; she merely said "I can't." She did not seem to recognize colors when named, and when shown pictures she talked in a *paraphasic* manner, e. g. (picture of kittens) "Oh! I wouldn't be sighing, I am sane, sane (? sayin')." She could not be brought to repeat simple words nor familiar series, such as the numerals. She could not name objects, simply uttered *meaningless jargon*. On the same day, the patient seemed to pick up something imaginary from the cover with the right hand, and dropped it over the bed. During the following few days the patient began to understand and use more words. She showed marked paraphasia and perseveration. At first she could not write spontaneously nor copy, but gradually her writing improved so that she could write an approximation of her name and address. The patient showed some jerking and fumbling with the right hand, especially when asked to write. On the evening of October 2, she appeared frightened, appeared to fling imaginary things from her right hand, said "Take it away, it is dirty." She continued to do this for half an hour. On October 3, she again appeared to fling something from her right hand in an apprehensive manner. On October 5, the patient appeared to be in practically the same condition as before the attack. She was able to speak freely and gave an account of the onset of the attack. "I took sick in the morning I think, it seemed to me I couldn't speak and I didn't know them, when Ada and my son-in-law came, I didn't know them." She had apparently a very hazy memory of her behavior during the past week, and no memory of having behaved peculiarly or in response to hallucinations. Examination of the cerebro-spinal fluid on October 25 disclosed a pronounced lymphocytosis.

During the following six months the patient showed little change and was allowed to go home on April 19, 1904. Her conversation dur-

ing the three days at home was continually about the hospital. On the fourth day at breakfast time, she was unable to use her right hand and said "Bad luck seems to fall (follow?) me." She was placed in bed; two hours later she was shouting excitedly the names of people and appeared to be in a delirious state. She was taken to Bellevue Hospital; there she was rambling and incoherent and laughed childishly.

On April 27 she was readmitted to Manhattan State Hospital. Her physical symptoms were the same as when discharged from the hospital. The right side of the face was slightly flatter than the left. No gross weakness of either arm or leg was observed; the right elbow-jerk was more active than the left; the knee-jerks were exaggerated but no difference was observed between the two sides; no sign of Babinski.

On May 9, the patient went to the clothes-room, forgot what she wanted, sat down on a chair; she was pale, but was able to walk with assistance to her bed. When examined five minutes later by the physician she apparently made an effort to talk but said nothing. She opened her mouth on request but did not protrude the tongue. There was no twitching. The muscular condition on the two sides appeared to be the same. Pin-pricks caused no movements on the right side, but were reacted to over the left side. The pulse was 64. The color slowly came back to the face. Half an hour later the patient had a similar attack. When observed a few minutes later, she was making purposeless movements with the right arm, head and eyes. These movements soon ceased. Pin-pricks over the *right* arm, chest and abdomen caused no movement; pin-pricks over corresponding areas on the left side were definitely reacted to. Pin-pricks over the right thigh and leg were reacted to but not so promptly as over the left leg. Plantar reflex; flexion on the right side, not determined on the left side. The patient had nystagmus for an hour and a half. The pulse was 60; four hours later it was 100.

On May 10 the patient showed marked paraphasia. She appeared perplexed and somewhat apprehensive. The duration of the paraphasia was not noticed.

Towards the end of June, the nurse observed that the patient frequently had attacks of dulness, when she would, for a few moments, be unable to respond and appeared not to understand what was said to her. At these times her right arm would frequently appear to be more or less helpless. These attacks would often be noticed when the patient awoke from sleep, or they would be preceded by moaning for a few minutes. The patient's mental condition showed considerable deterioration, she knew where she was, but had no idea of the month or year. She grasped questions with difficulty. Her answers were rambling and full of repetitions. In what year were you born? "I can't tell, tell what year I was, I can't tell where, she's 23, I was 20, no 23, she said she is 23 - -." When asked to write she was

unable to grasp the pencil suitably without help; she made a few awkward lines. She then seemed to become stupid, the right angle of the mouth and the right thumb twitched; the right arm was found to be limp and helpless. She did not appear to understand what was said to her, answered "no" and "I can't" to all questions. After about ten minutes she was much brighter, was able to move the right arm. She did not comply with simple demands, she called a watch a "clack"; (pencil) "that's I know what that is, a writing, t'is". The patient did not appear to notice objects in the right field so readily as in the left. Sensibility was duller over the right arm than over the left. There was no gross motor weakness on the right side but movements of the right hand were more awkward than those of the left.

On June 27, there was transitory weakness, or, more accurately speaking, want of utilization, of the right arm; she used the left hand by preference, the right arm seemed helpless, but she was able to use it freely when urged to do so.

On June 28, she had two minor attacks. In the first, which lasted only a few minutes, the head and eyes turned to the right, both arms twitched, the right more than the left; then she began to fumble with left hand, and was able to answer "yes" and "I don't know". Two hours later she had another attack in which the right face and arm twitched; no weakness of either hand-grip was observed after this attack.

The patient had no attacks in July; she understood well what was said to her, was able to name objects correctly; the right hand was a little weaker and less steady than the left; no sensory disorder was demonstrable.

On August 5, she had a transitory weakness of the right arm, was weak, tended to fall to the right, appeared dull and vacant; in a few minutes she had returned to her previous condition.

On October 9, she had an attack of dulness, with accentuation of her speech defect; she complained of her right hand, but no gross weakness could be demonstrated (co-operation poor).

The patient showed progressive deterioration; in November she uttered absurd ideas about her dead husband having returned alive. The pupillary reaction had become more defective; the left pupil did not react at all to a strong light, the right showed only slight reaction.

On December 16, after several days' drowsiness and reduced talkativeness, she was, in the morning, unable to utter articulate sounds; in the forenoon she could say "yes", "no"; she could not use her right hand. In the afternoon she was able to speak, but rambled on in a fragmentary way about her work in the laundry, showed some difficulty in finding the right word. She recognized objects, had difficulty in naming them, showed paraphasia and perseveration. (Watch) "Courses, good courses, corset, silver corset." (Two dollars) "That's nice, two chisl, one corset, it's a corset, you have that

to spend two corset." She did not carry out simple spoken orders, but answered some simple questions after they were put several times. She was able to imitate various gestures shown her. She wrote the initial letter of her name, then stopped. No difference between the knee-jerks could be demonstrated; ankle-clonus was present on the right side, but only occasionally was there a tendency to clonus on the left side. On the following day the patient was able to use her right hand.

In January, 1905, she had deteriorated further; she mistook her daughters for her sisters, immediately forgot that she had had a visit. She showed fair understanding of simple questions and commands but marked paraphasia and perseveration with senseless reiterations. The right arm showed no gross weakness; the right elbow-jerk remained stronger than the left. In walking the ball of the right foot scraped the floor a little. Plantar reflex, as a rule flexion on both sides with occasional doubtful extension on the right side.

During 1905 the patient showed progressive deterioration; she soiled the bed continually. No weakness of either hand-grip was noticed, but the right hand was usually held in the left hand or on the chest. In walking the right foot rubbed the floor slightly. The difference in the reflexes of the two sides was slight, the right being the more active; ankle clonus and plantar flexion on both sides; the ankle clonus was more easily elicited on the right side. The pupillary reaction to light was lost. She was quite unable to write even an approximation to her name; she made meaningless scrawls. She reacted to pin-pricks over all parts of the body.

In February, 1906, the patient was now too weak to walk to the chair. No further neurological incidents occurred. In March broncho-pneumonia developed and the patient died on April 3, 1906.

CASE 15. W. S., 49, laborer, right-handed; admitted July 8, 1905.

Family History. A paternal grand-aunt was insane in advanced life; the mother was silly and simple for a few weeks before death at 68. One brother of the patient is alcoholic and somewhat abnormal.

Personal History. The patient was born in New York City in August, 1855. He was probably neurotic as a child, received a fair education, took up work in a dry-goods store. He was cranky and irritable, indulged to excess in alcohol and tobacco; his sexual habits were not known. He married at the age of 34, and his wife had one boy of a rather nervous temperament, no miscarriages; he did not wish to have any more children. In 1902 he lost a position as assistant-foreman in the street-cleaning department, took this very much to heart; he had to take a job as an ordinary sweeper. In 1903, he became more irritable than usual, ill-treated his child; in 1904, *his speech became defective*, he would start to tell something and stop in the middle; he showed peculiar behavior. One day towards the end of 1904, he was unable to speak for ten minutes, although conscious.

In December, 1904, when brought home after a convulsion on the

street, he could barely articulate and mixed his words up, bringing them out with great effort; he would scream out his words in the effort to speak; he was able to understand the doctor's requests; he was temporarily unable to read or write; after two days he could read and could soon write again (wife's account). He resumed work in January, 1905, but frequently told of spells during which he had become speechless and had to sit down. His wife frequently observed such attacks in the house; he could not answer any questions, would utter an inarticulate groan; as soon as the spell was over he was able to go out, but for a short time the right arm would be weak; he would be unable to lift his cup. At times he complained of numbness in the arm. These spells occurred several times a week; his gait, even between the attacks, was staggering, although he did not seem to notice this. On one occasion the patient lost his way in town and could only give a very hazy account of his wanderings.

About three weeks before commitment he had a very severe attack, and after this he began to act outrageously towards his wife and child; for two or three nights before his removal to Bellevue Hospital he talked of people coming to throw him into the boiling fat, he said "take these dead bodies away."

In Bellevue Hospital he was quite disoriented, thought that he was in a dry-goods store, and that he had been there for three weeks (two days); he gave the date as January, 1904, said that he felt fine. He talked continually at the top of his voice, was restless and irritable.

On admission, July 8, 1905, the patient was confused and restless, picked at the bed clothes, made feeble efforts to rise; he grasped aimlessly at the physician's hands, answered questions in a tremulous, stammering voice. He resisted the care of the nurses in a rather turbulent manner, and was placed in a tepid pack for several hours.

When examined on July 10, he showed extreme mental dilapidation; he seemed to have no idea of the environment, he did not recognize the physician as such, he could not tell when he had come to the hospital. His mood was one of complacent good humor.

Physical Status. General nutrition fair; no external evidence of syphilis, but the glans penis could not be examined owing to phimosis; Argyll Robertson pupils; knee-jerks much increased; Achilles-jerks not elicited; plantar flexion on both sides. No weakness of either side. Gait ataxic; sign of Romberg. Tremor of face and tongue; speech and writing very defective.

In the months following admission he had occasional attacks of weakness, and in September he had a convulsion. In October he became so ataxic that he was placed in bed; at this time his pupils were definitely unequal. When examined in November he was unable to write his name, could only scrawl a few letters.

On December 17 the patient had an attack of weakness, collapsed toward the right side, but grasped well with the right hand; it was difficult to loosen his right hand from the bedstead which he had grasped;

the right leg was somewhat flexed, and if touched was withdrawn and began to twitch; he kept the right leg somewhat flexed; the right foot would twitch as soon as it touched the floor. He could not be brought to say more than "yes." On *December 18* he named objects incorrectly and showed perseveration: (Pencil) "Pencil." (Eye-glass case) "Comb". (Eye-glass in case) "It's a spoon" (Eye-glass) "It's a spoon" (What for?) "We comb with that".

This difficulty in naming objects persisted for a few days and he showed marked paraphasia, *e. g.*, *December 23*, (Pen) "That's a le-le-ste lencil." (Pencil) "That's because for co-coa many a shawl—." (Keys) "Oh go-go-go-go—I cal them ca-casmus ay—I call them castles". On a later attempt he named them correctly. In speaking he became a little excited and poured out a series of meaningless syllables with energy. His spontaneous utterances consisted of a disconnected series of words and phrases. On this date there was no weakness of the right hand-grip.

The difficulty in naming objects was not observed in *January, 1906*, but in speaking he frequently stuck and stuttered, so that many utterances were quite unintelligible. In *February* he spoke more freely than previously, was much brighter and walked better; he said: "Thank God I'm getting stronger and won't die here". There was quite a contrast between his comparatively free delivery and his previous drawling, sticking and stammering. He could now write his first name, but was unable to complete his second name. He said—"Isn't it fierce I'm nervous, I am a d—d fool to write like that". He was able to give a much better account of his life than at any previous time in the hospital; he said, "to my knowledge it is a place for you taking stating (statements—physician's notes) for outside jobs—for taking examinations for public jobs." He had no idea of the season or year. He denied that there was anything wrong with his mind. In *March* he had returned to his previous low level; in *May* he had a sudden transitory attack of unconsciousness with an unexplained temperature of 103°; the eyes moved restlessly; no difference on the two sides was observed, except slightly greater rigidity of the left arm. Two days later the temperature again rose for two days and then returned to the normal.

During the summer the patient showed progressive enfeeblement without any further neurological incidents; an axillary abscess developed and he died on *September 18, 1906*.

CASE 16. M. L., 33, right-handed, plasterer's helper; admitted May 1, 1905.

Family History. One maternal cousin was insane and died in an asylum. A maternal uncle died suddenly at the age of 14, from some brain trouble. The patient's wife thought that other relatives had been insane, but no definite information could be obtained.

Personal History. The patient was born in Ireland in 1872, was a bright child, learned to read and write, worked later as a laborer,

came to America in 1890, married in 1899. Nothing definite was known as to venereal infection except that the patient had admitted to his family doctor that he had had syphilis; he was always alcoholic, and during his married life drank beer and whiskey to excess. His wife knew of one mild delirious episode, but denied that he had ever had delirium tremens. For ten years previous to admission the patient suffered from headache and occasional neuralgia. In 1903 he began to drink less in order to save money. The exact date of the onset of symptoms could not be determined, but in 1904 he behaved peculiarly at his work, would stand looking vacantly or fixing his buttons instead of working; his comrades thought he was under the influence of drink.

In September, 1904, he one day came back from work and said, "I do not know what happened to me to-day, I can hardly get the words out;" it took him a considerable time to articulate, and his wife understood him with difficulty; no motor weakness was observed. He was able to work next day and his speech improved for a time, but in December became worse. In November his gait had become very unsteady; he would stagger when going across planks, was unable to keep a job more than a week. He was very irritable, treated his wife and children harshly; he was untidy, would spit on the floor, occasionally passed water in bed. During the winter he was sleepless and restless, occasionally arose at absurd hours. He showed no shame in exposing himself before the children.

On March 21, 1905, he lost his way outside, but was cunning enough not to let some acquaintances, whom he met, notice it; on the same day he could not sign his name on a check, he said that his arm was all right, but that he had forgotten how to spell his name. As he recognized that his speech was impaired, he was coaxed to go to Bellevue Hospital to consult a physician. He there said that there was nothing the matter with him, except that his voice was not good, and his memory somewhat defective; he gave the date as 1885.

On admission to Manhattan State Hospital (May 1, 1905), the patient was quiet and agreeable, readily entered into conversation, had no morbid ideas of greatness nor of persecution. He gave the date correctly, although he occasionally gave 1895 for 1905; he did not know exactly where he was, described the environment vaguely as "a nice place." He could not at first give the name of the hospital from which he had come, but later gave it correctly. He gave correctly his age at marriage, and the duration of his married life. He could not retain a name or number given him for ten minutes. He showed extreme ignorance of general information, although he had been to school for several years; he repeated the alphabet incorrectly, took thirty seconds to complete it. He had no insight into his sickness; "I am strong and healthy, the only thing the matter with me is my voice."

Physical Condition. A well nourished man who admits syphilitic

infection. Pupils unequal and with sluggish reaction. "Speech very ataxic." Knee-jerks exaggerated.

During the summer the patient showed only slight mental decline. He could name the hospital correctly, but did not realize that his fellow patients were mentally affected; he would give the year as "1995 and one", said that it was February (October). He could give a fair outline of his life but became hopelessly confused in an attempt to give accurate dates; he had come to America at 28, at 24, at 22, at 20. He was 22, 26, when he married. His mood was one of complacency, with occasional tearfulness over detention.

On November 1, about 11.30 A. M., he was observed to be walking unsteadily, dragging his *right* leg. Examined at 11.45; on the right side—sign of Babinski, ankle clonus; on the left side plantar flexion, no clonus; knee-jerks equally exaggerated. At first he gave an equally good grip with both hands, but was much more *awkward* in grasping with the right hand. When placed at a table in order to write he said that the *right* hand felt funny, he raised it with the left hand, dropped it on the table to limber it up. When asked to give a hand-grip he was now unable to grip at all with the right hand. The tongue was put out straight. He showed a little difficulty in naming objects, with slight paraphasia. Paper: "It's - - - I can not say nothing." Bottle: correct. Paper: "Bottle—water (laughs at his mistake) oh! water." He said of his hand, "now it's *niff* (stiff)." He seemed confused; when asked where he was he grinned, but gave no answer. A few minutes after the examination he was taken to dinner; he took his spoon in his right hand, but used it awkwardly, used his left hand for his meat. He did not name the various dishes when asked. At 1.45 P. M. he cheerful greeted physician, said: "I'm all right now, doctor." No trace of right-sided weakness nor clumsiness, nor of speech defect (except his usual articulatory disorder) was now observed; he was able to write. Plantar flexion on the right side; no clonus. He remembered the incident well, said that for a quarter of an hour he had felt quite shaky and did not know where he was. "My feet were queer—my feet got stiff—my legs too."

His general physical condition at this date was as follows: General nutrition excellent; pupils irregular, unequal, reacting promptly but not extensively to light; patellar and Achilles-reflexes exaggerated and equal: upper tendon reflexes very active; writing tremulous, irregular with marked omission of syllables and distortion of words, *e. g.*, methese espeseaes (Methodist Episcopal), 1 nveere (November 1); speech slurring, sticking and rather staccato but without omission of syllables; internal organs satisfactory.

On December 17, the patient had a similar transitory right-sided attack. He said in the morning that he felt queer and staggy; his right hand seemed powerless, he held it in his left hand; he could just fold his right fingers round the nurse's hand without gripping;

he said that his right leg was weak. He stammered a good deal when talking, and the muscles of his face twitched. When examined by the physician at 9.15 A. M. there was no weakness of the right arm or leg, no sign of Babinski, no difficulty in naming objects.

During 1906 the patient had a variety of transitory attacks, and his mental condition gradually became worse. No special decline was seen in relation to the neurological episodes. He treated all these incidents as of no importance, and was annoyed when they were emphasized.

On January 9, 1906, he was seen to be stamping his legs; he said that both felt numb and that there was a numbness of his *left* wrist; no weakness of hands nor of legs; plantar flexion.

January 14, sudden weakness of the *left* hand leaving no trace in three minutes.

January 25, during the night he had transitory stiffness of the *left* arm; he left his bed, staggered about the ward, tumbled over a chair; he began to cry, said, "I don't know what's the matter with me."

March 20, he had a transitory weakness of the *left* side lasting for ten minutes; the leg was weak, the leg and arm felt stiff, the left cheek was flattened and moved less than the right. No objective sensory disorder was made out.

March 21, transitory numbness and weakness of the *right* hand.

November 16, he fell on the floor of the bath-room, received a scalp wound over the occiput.

November 17, the patient went out for exercise and had been talking as usual; at 10.30 A. M. he was found sitting on a chair with the *right* hand in the left; the right side of the face was smooth, the mouth pulled to the left; the right leg was dragged on walking. When asked how he was, he said "all right", but answered no other simple questions about his condition; he carried out no simple commands, merely looked stupidly in front; the lips and tongue were constantly moving. After ten minutes he answered his name. How old? "Over - for - or - or"; no intelligible sound. Name of this place? Unintelligible mumble. He could not name objects shown. Fifty cent piece: "I forget now." Keys? No response. Cent? He took it in his hand, rubbed it over his forehead, made the sign of the cross, began to mutter a prayer (? Asymbolia). Plantar flexion on both sides; no ankle clonus; knee-jerks both much exaggerated. At 11.45 the right leg was still weak, the hand-grip was better; he showed much less difficulty in naming objects. Next day there was no residual from this attack.

During October and November the patient became much more demented, less anxious to go home, more pleased with the hospital; his speech was almost inarticulate.

December 3, the patient became extremely weak, barely able to walk, was placed in bed. Next day he was in his usual condition.

He became progressively more stupid, failed to recognize his nieces and his brother-in-law; he called the charge nurse his wife's husband; he was able to give correctly the name of the hospital even at a very late stage of the disease. He said it was summer although the ground was covered with snow (January 28).

During the Spring he became feebler; broncho-pneumonia developed. He died on April 15, 1907.

CASE 17. A. H., 52, musician; admitted to Manhattan State Hospital, March 21, 1907.

Family History. Negative; information very defective.

Personal History. The patient was born in Hungary in 1855, developed normally and received a good education. His father was a musician; he himself early showed musical talent, and became a musician of the cafés. He drank to excess, indulged in venery, received some venereal infection as to which he could give no trustworthy information. He married at the age of 22; his wife had two children, no miscarriages.

He came to America in 1890 and played in various hotels. After several years he became rather short of breath. More than a year before admission he felt sudden precordial pain one evening; from this date he was unable to continue playing. He consulted a physician and received treatment at home; he was sleepless, restless, without appetite; he complained of a burning feeling in his head; he could not support any noise. He became progressively more apathetic, but showed no evidence of morbid ideas nor of hallucinations. His wife could not support him, and he was committed on the ground of his mild dementia.

On admission to Manhattan State Hospital (March 21, 1907), the patient was dull and apathetic, he accepted without comment the change of environment, was quite accessible when examined. He knew where he was, but could not give the date. He showed marked memory defect, made contradictory statements about the ages and number of his children, his own age, and various periods in his life. He knew that he was sick. He gave no evidence of any morbid beliefs, had no expansive ideas, was pleased with the environment and rather more cheerful than his situation warranted.

Physical Condition. A well-built man with no anatomical stigmata; history of syphilis at 28 (patient's statement). He complained of headache and dizziness. Pupils irregular, reacted on accommodation; the right did not react to light, the left reacted very faintly. Knee-jerks and Achilles-jerks absent; gait and upright position unsteady; sign of Romberg. Slight general diminution of pain-sense; touch and localization satisfactory; no local differences. Tremor of tongue; speech slow and deliberate and with distortion of long test phrases. Heart somewhat enlarged; no valvular lesion; definite arteriosclerosis. The sudden onset of cardiac pain one year previously suggested the presence of coronary sclerosis.

On April 1, after being on the chair for some time, he could not rise, the *left* hand was quite limp, he could not advance the left leg, required to be carried to bed; he did not answer questions, but appeared alert, took liquid nourishment well. A few hours later he answered questions relevantly, but showed definite *weakness of the left face, arm and leg*; plantar flexion on both sides.

April 2, the weakness still persisted, but he used his left hand in gestures and was able to give a hand-grip; there was no special sensory disorder on the left side; he lay looking to the right side, he did not wink when feinted at from the left side; he paid no attention to movements nor to an electric light in the left field. *On April 3* there was no trace of hemianopia.

On April 4, he showed a peculiar transitory motor disorder of the *right arm*; at noon he was unable to feed himself, could not pick the spoon off the table, made wide ataxic movements missing the table altogether; his right hand would go under the table or widely over it; he grasped his bowl by the far side, spilt the soup. When examined three hours later there was no trace of this ataxia of the right hand; he was able to take a cup of milk in the right hand and drink it without spilling it.

When placed on his feet his left leg gave way entirely and he had to be put back to bed. He now complained of weakness in both hands, but would not co-operate when his strength was to be tested. He pointed to his *left* hand as if it felt peculiar. The test for hemianopia was inconclusive, but he did not react so definitely to feinting from the *left* side as from the right.

On April 8, he was dull in the morning, alert in the afternoon; it was more difficult to persuade him to grip with the *left* than with the right hand; both hand-grips were weak. Plantar flexion on both sides. No difference in the reaction to pin-pricks on the two sides. He did not react when the eyes were feinted at from the left, reacted when feinted at from the right; he did not follow objects in the *left* visual field, followed objects in the right field. There was evidence of pulmonary congestion; P. 136, R. 40, T. 103.2°.

On April 10, he was bright, but had no memory of his wife's visit on the previous day. He said that his *left* hand was weak; it appeared somewhat weaker than the right, but he gripped sufficiently firmly with the left hand to be almost pulled out of bed by it. No evidence of hemianopia.

On April 11, the patient winked less when feinted at from the left than from the right side; he could not stand without support, the left leg was very weak, the foot somewhat inverted. He became steadily weaker and died April 14, 1907.

CASE 18. N. F. T., 42, salesman; admitted to Manhattan State Hospital January 4, 1905.

Family History. The father died of general paralysis, the mother of heart disease. Nothing was learned about the collaterals.

Personal History. The patient's mode of life had estranged his family so that a good history of his life could not be obtained. He was born in New York in 1860, received a good education, graduated at 24 from the university. He became a veterinary surgeon, but later he apparently followed a variety of occupations, was intemperate and dissipated. He married at the age of 28; two years later his wife died of puerperal fever, leaving him a daughter. He worked for several years as a salesman, and traveled for a medical book; he continued to lead a dissipated life and had delirium tremens in 1900. For some time previous to admission he had been "queer" and an annoyance to his relatives. He finally found his way into the work-house, where he talked boastfully of his great wealth; he was later committed to Manhattan State Hospital.

On admission to Manhattan State Hospital (January 4, 1905), the patient was quiet and tractable, talked in a boastful manner about his wealth and abilities as a salesman; it was not possible to obtain from him any reliable information. His general health was satisfactory. He adjusted himself pleasantly to hospital life; during 1905 no special episodes were noted.

Mental Status February 18, 1906. The patient is quiet and good-natured, if not contradicted; he continually talks to the physicians, attendants and fellow-patients about his riches and his future plans. He is a millionaire, will give all the hospitals, churches and libraries \$500,000; he intends to take all those suffering from rheumatism to Europe in a sumptuously furnished ship; he has been to the North Pole with Peary; the dead can be resuscitated by electricity (an idea borrowed from another patient). He talks incoherently, leaves his sentences unfinished, frequently sticks in the middle of a word and passes to another subject: "I was shot but Marcus four minutes was alive again electricity and rheumatism—the cemeteries are all empty—2,000 in Europe."

He has a fair idea of the date and place; his memory is very defective, he can give only a fragmentary account of his life with absurd inconsistencies.

His grasp of general information is much dilapidated. " $9 \times 7 = 63$," " $9 \times 9 = 83$ —is 86," " $9 \times 7 = 18$." Retention of tests is very poor. The patient has no insight into his mental impairment.

Physical Status. No external evidence of syphilis; he denies infection. Knee-jerks and Achilles-jerks equal, exaggerated; plantar flexion on both sides. Pupils slightly notched, irregular, react well on accommodation, but defectively to light. No marked weakness of either side, no sensory disorder. Gait uncertain, waddling, jerky; no sign of Romberg. Tremor of tongue, face and fingers. Ataxia in touching nose with index finger. Speech tremulous, sticking, with distortion of words; writing extremely tremulous with distortion of words. The patient has a slight cough; heart action is satisfactory; peripheral arteriosclerosis.

During the summer the patient became feeble and mentally more dilapidated.

On September 1, 1906, the patient had a series of convulsions lasting from 4 to 5 A. M.; these were localized on the left side of the body (attendant's note). When examined in the morning he lay with head and eyes turned somewhat to the right; the *left* face, arm and leg were in a state of flaccid paralysis; he appeared to be insensitive to pricks on the left arm and leg, but reacted to pricks on the left face. There was prompt reaction to pin-pricks on the right side. No sign of Babinski. He was very dull, did not speak, paid no attention to spoken gestures or commands. In the afternoon he regained the use of his limbs. On September 2 he was able to move the left arm and leg; the sense of pain on the left side was still impaired. He kept up a continual stream of incoherent talk. On September 8 he was able to be up.

On September 18 the patient suddenly lost power in his *right hand*, was unable to articulate but smiled; the face was drawn to the left side. The speech difficulty and right-sided symptoms were noted next day; he did not use the right arm, the right leg was not so rigid as the left. He made no response to questions, did not obey commands, although he looked bright.

On September 23, he was able to give a good hand-grip with the right hand, and could talk; he reacted promptly to pin-pricks on both sides. He lay in bed repeating a senseless jargon or simple phrases.

On October 4, he was unable to take up a cup with the right hand; this persisted for a week. He was very feeble and on October 12 was placed in bed. He lay in bed babbling aimless remarks. There was extremely well-marked tremor of all extremities with coarse twitching.

He rapidly emaciated and developed a very deep bed-sore over the sacrum; broncho-pneumonia developed. The temperature had only occasionally reached 100° during October; on November 3 it reached 102°, then steadily sank to 97° on November 6. The patient died on November 9, 1906.

CASE 19. W. B., 45, salesman; congenitally left-handed, right-handed by education; admitted June 27, 1905.

Family History. Negative.

Personal History. The patient was born in Ireland in 1860. At the age of four he began to suffer from osteitis and went about in a wheeled cart until the age of ten. When he was a boy of six years he had to be broken off the habit of using his left hand; his left hand had to be tied at times. In later life he always used his right hand. In his youth his right patella was fractured. He was a bright scholar; on leaving school he entered the dry-goods business, and was an efficient salesman, and later a commercial traveler. He came to America at the age of 21 or 22. He was temperate in the use of alcohol. He had some venereal infection when a young man and probably had treatment for a very short time; there was no history of secondaries.

In 1903 the patient married; his wife did not become pregnant.

In *August, 1904*, occurred the first observed symptom. The patient one day sat down to write an invitation to an intimate friend; he *could not remember his name*; when the name was given him he *wrote it very badly* and recognized the fact, "look how I've written—I can't do it any better." No weakness of either side was noticed by his wife. About this time his speech was affected and his comrades occasionally thought (incorrectly) that he was drunk. He became very untidy at table, would spend hours looking at himself in the glass, and gave inadequate explanations, such as "I have to—I'm cutting my moustache." He was forgetful, absent-minded, made strange remarks, would repeat the same story several times. He complained of his feet, his gait became unsteady, he fell several times. In February, 1905, on hearing of the commitment of a friend he said "that's the way I'll go too." In the Spring of 1905 he was irritable, capricious, had little outbursts of passion; his conduct was more erratic, he was much more talkative than usual, neglected his personal appearance. From April until his commitment in June, he made life for his wife very disagreeable, he was pleased with nothing. In June, when his wife went to town, he refused to stay in the same house with her, stayed at an hotel. He now began to think that he had a lot of money, automobiles, horses, etc.; Tiffany owed him a million dollars. On one occasion he was unable to find his way home, and the night before he was taken to hospital he probably slept on the street. Two or three weeks before admission he had come in distress to his sister to borrow a quarter for breakfast, and on that occasion he said "I'm going all to the dogs."

On admission (June 27, 1905), the patient was quiet, accessible and good-natured. He answered questions relevantly, but made few spontaneous remarks; the date he gave correctly, but he did not know the name of the hospital. He said that he never felt better in his life, and uttered a variety of boasts about his present wealth and bright prospects. At the same time he had some insight into his sickness and made several references to this; he said that he had been broken down, that he had suffered much from rheumatism, and had much worry and bother. He looked forward to owning 150 horses and much land, lots of money, "automobiles, yachts, and everything that I desire." He gave a fair account of his life with no gross discrepancies, but was rather vague and incorrect in his statement of the manner in which he had spent the days immediately preceding admission.

Simple questions on general information frequently were too hard for him; he said "I have a very poor memory." Simple addition was performed correctly, but he was unable to subtract—"7 from 19 is 11."

Although admitting that his memory was poor and that he had some physical symptoms, he had no true appreciation of his general mental impairment.

Physical Status. The patient was a tall Irishman with no anatomical stigmata, but with several scars, some of which appeared to be of syphilitic origin; he admitted having had syphilis when he was young, but no trustworthy information as to symptoms and treatment could be obtained. The knee-jerks were absent; the pupils reacted well to light and on accommodation; some unsteadiness of gait and in the upright position was noted; there was tremor of tongue and fingers and the writing was very tremulous and untidy; speech was slurring and stumbling with omission of syllables. No other motor disorder was observed. He showed general diminution of the sense of pain. The internal organs were normal.

During the summer there was no marked change in the patient's condition and in November his physical status was practically the same; his gait at this time showed no disorder, he was able to walk steadily along a straight line. The pupils continued to react well.

Mentally he had deteriorated somewhat. His grandiose ideas were more dilapidated than on admission; he was very expansive and gave a farrago of grandiose ideas—he was the oldest man in the world, three years old, would get all the languages, possessed everything, was in the finest hotel—he introduced disagreeable features, such as “those nasty fellows there,” “these are the worst rooms in the whole going to poison.”

His stream of talk showed superficial associations, and frequently consisted of an incoherent enumeration of articles, especially of eatables, “Everybody is making all these things—I'm not making them—wines in Sicily and all these American towns—College Point, Constantinople and Boers and Boers and Boers and wild boars and horses and stallions and parasols for winter and summer.”

The progress of the disease presented no special incident until November 21, 1905, when he complained at night that there was a man under the bed, who had come up through the floor and was annoying him.

On November 22, he was very weak, staggered and was put to bed; he shortly afterward was found lying on the floor and was unable to make himself understood. He showed marked *paraphasia*; he uttered with great effort, and evidence of much irritation, an unintelligible series of sounds. His *left arm* was quite limp and with the left hand he could only give a weak grip; the right hand-grip was strong. He did not show his teeth on request, merely pointed to the physician's teeth. When asked to write, he pushed the paper aside and wrote his name (William) on his left arm which was lying across his abdomen. He understood some simple questions. When examined a few hours later he showed marked *paraphasia* with perseveration, his utterances sometimes consisting in a mere jargon of syllables; *he could not write his name* but after starting correctly showed perseveration on one letter. When given a tumblerful of water he drank appropriately; when given eyeglasses and asked to indicate their use,

he took them awkwardly, showed no appreciation of how to put them on. Plantar flexion on both sides. He was rather excitable and irritable.

On November 23, the aphasic disorder was unchanged; the patient had considerable difficulty in swallowing, the milk would frequently trickle back from the lips. When assisted to walk he showed no noticeable weakness of the left leg, but occasionally he suddenly collapsed.

November 24, the patient swallowed liquids without difficulty. As on the previous day, he was unable to put a cup to his mouth; when a spoon was put in his hand he would grasp it correctly, but seemed unable to lift it. Tests for *hemianopia* made during the following week were inconclusive, but on November 25, he did not react to a moving object in the left field. The *paraphasia* persisted for several days.

On November 26, he had considerable difficulty in naming objects, he called a nickel "cellah—sevrah—silvah;" (how much?) "Fillabel—finv (? fünf)—its walless—its worth—eh;" he seemed to understand simple questions, but frequently made quite irrelevant or unintelligible replies, e. g., (Why are you in bed?) "be—because—too—cook me—B. (his name);" (Q. repeated) "because I didn't get what I was — (inarticulate)." He named colors correctly: in naming objects he frequently showed paraphasia and perseveration, e. g., (Paint brush) "Bush—for your teeth," (Shoe) "Toose,," (What?) "Boo-b-bushes;" (Sock) "Sex," (Paper) "Bank-paper," (Watch) "Yatch—watch." He could not name objects placed in the left hand; he named correctly (with paraphasic fumbling) objects placed in the right hand.

No difference in the action of the facial muscles on the two sides could be made out. The *left hand-grip* was much weaker than the right, the left leg seemed weaker than the right (? poor co-operation).

Tests for hemianopia were not conclusive, but a moving object seemed to attract less attention on the *left* than on the right side.

On November 27, the patient was able to give as good a grip with the left hand as with the right, but showed difficulty in carrying out definite movements with his left hand. He was unable to pick a cent off the table with the left hand; when told to brush his nose with a little brush he had great difficulty in taking up the brush in his left hand, he then brought his hand to his nose with the brush in the palm; when further urged, he brushed his cheeks, not his nose. With the right hand he carried out the movement promptly and accurately. He had great difficulty in touching his nose with his left index; he did it easily with the right. The sensibility of the left hand to pin-pricks seemed the same as of the right. There was no evidence of the weakness of the left leg, which was observed on the previous day.

Tests for hemianopia were inconclusive. He still used paraphasic expressions.

On November 29, the paraphasia was still present; there was definite *astereognosis* of the left hand. He touched his nose promptly with the index finger of the right hand. When asked to do it with the left *index finger*, he touched his nose with his *hand* or made little gestures with the hand; when asked to touch it with the forefinger, he said, "I don't know what you mean." He finally did it correctly with the left hand and without any ataxia, but frequently he would wave the arm about before carrying out the movement. Tests of sensibility, carried out with a brush, were inconclusive; he would wave his arms about, rub one arm on the other, no matter which arm was touched.

In the evening he suddenly attacked the attendant, said that he would not let him kill his wife; he made frantic efforts to go out into the corridor; when allowed to go in order to investigate, he hurried to the opposite side, hunted under the tables; he struggled violently when taken back to bed; he pointed at the attendant, said, "there's my wife."

On December 1 the patient was still rather excited, frequently struggled to leave the bed; he talked quickly, stuttered badly, was frequently quite inarticulate. He named many objects correctly, but with others he showed paraphasia. (What is this? 5c.) "That's a V—omen—Victoria—that's villeela—et—what—Victoria is it—vill—who? me—me—v—u it's done—I didn't say it was Victoria at all—well if I didn't they wouldn't give you that."

Tests for *astereognosis* and *hemianopia* were quite inconclusive. He gave a weaker grip with the *left* hand than with the right. In the evening he appeared to be following with his eyes objects on the wall to his left.

On December 2 he was rather dull and difficult to rouse; he made no reaction to severe pin-pricks on either side, but referred to "the feeling—just where you stab me." He moved both hands equally freely. No difference in reaction to objects in the left and right visual fields.

On December 5 the patient was much brighter and practically in the condition preceding the attack; he could now pick up a cent as easily with the left as with the right hand. His writing was slightly worse than on admission to the hospital.

The whole episode, therefore, had lasted rather less than two weeks.

During the next seven months little change was noticed in his general condition, but several times he answered imaginary voices, and said that he actually did hear voices; he would pound the chair in his rage and swear vigorously, but, when asked about his experiences, he would look ashamed and refuse to discuss the matter. He fell on one occasion and sustained a fracture of the neck of the femur, which did not unite.

On July 17, 1906, after a bath, his eyes and head turned to the left,

the eyes twitched, he could not speak although he appeared to make an effort. At 10.05 A. M. he had a general convulsion. When examined at 10.35 he was lying on his back with head and eyes turned to the left, the *left angle of mouth* puffed out during expiration; *limpness of left arm and leg*; he could give a right-hand grip, but not a left. Sign of Babinski on the left; on the right side the plantar reflex was sometimes flexion, sometimes extension. He did not react at all to pin-pricks. In the course of the day he had three general convulsions. When examined at 5 P. M. there was evidence of *left-sided hemianopia*; he paid no attention to objects in the left field, but followed objects in the right field and grasped at them; fainting from the left side caused no reaction, from the right side caused winking. He made faint inarticulate sounds when addressed, he made at first no attempt to name objects shown, but later called a pencil "stencil—pencil." During examination the head and eyes turned to the extreme left, the eyes, forehead and facial muscles twitched; this passed off in a minute. He reacted to pin-pricks on either side of the face, not on the arms nor body. A little later the left arm gave three or four clonic contractions, the left leg began to jerk, then a general convulsion developed; the head and eyes were pulled to the right. The left arm was the first limb to relax. At 8 P. M. there was evidence of *left-sided hemianopia*; objects in the left field were not reacted to, in the right field were followed by the eyes and grasped; fainting at the eye from the left side never elicited a reaction; from the right side frequently caused winking. No reaction to pin-pricks even over the face. He could not be brought to grip with the left hand, gripped well with the right; left leg more flaccid than the right; sign of Babinski on both sides.

During the examination the head and eyes were suddenly turned to the left, the left arm began to twitch, the mouth was pulled to the extreme left; the left leg now began to twitch and the convulsion then became general; after a few seconds of stertorous breathing with cyanosis the head and eyes turned to the right.

The patient had another convulsion during the night and next day was in a comatose state. On July 19, at 9 A. M., he died.

MINUTES OF QUARTERLY CONFERENCE

FEBRUARY, 1914.

Minutes of the conference of State hospital superintendents and representatives with the State Hospital Commission, held at the Capitol in Albany, February 26, 1914.

Present—

Commissioners MAY and PARKER.

Dr. AUGUST HOCH, Director of the Psychiatric Institute.

Dr. WALTER G. RYON, Medical Inspector, State Hospital Commission.

Dr. J. I. MCKELWAY, Deputy Medical Examiner, Bureau of Deportation.

Utica State Hospital, HAROLD L. PALMER, M. D., Medical Superintendent.

Willard State Hospital, ROBERT M. ELLIOTT, M. D., Medical Superintendent.

Hudson River State Hospital, CHARLES W. PILGRIM, M. D., Medical Superintendent.

Middletown State Homeopathic Hospital, MAURICE C. ASHLEY, M. D., Medical Superintendent.

Buffalo State Hospital, ARTHUR W. HURD, M. D., Medical Superintendent.

Binghamton State Hospital, CHARLES G. WAGNER, M. D., Medical Superintendent.

St. Lawrence State Hospital, RICHARD H. HUTCHINGS, M. D., Medical Superintendent.

Rochester State Hospital, EUGENE H. HOWARD, M. D., Medical Superintendent.

Gowanda State Homeopathic Hospital, CLARENCE A. POTTER, M. D., Acting Medical Superintendent.

Kings Park State Hospital, C. FLOYD HAVILAND, M. D., First Assistant Physician.

Long Island State Hospital, ELBERT M. SOMERS, M. D., Medical Superintendent.

Central Islip State Hospital, MARCUS B. HEYMAN, M. D., Assistant Superintendent.

Mohansic State Hospital, ISHAM G. HARRIS, M. D., Medical Superintendent.

Miss BERTHA PECK and Mr. FRED J. MANRO, Managers, Willard State Hospital.

Dr. WILLIAM D. GRANGER, Manager, Mohansic State Hospital.

Mr. WILLIAM H. HECOX, Manager, Binghamton State Hospital.

- Mr. ALBERT E. KLEINERT, Manager, Kings Park State Hospital.
 Mr. CHARLES B. DIX, Inspector of Buildings and Engineering for the State Hospital Commission.
 Mr. WILLIAM C. O'HERN, Secretary Purchasing Committee for State Hospitals.
 Dr. WILLIAM L. RUSSELL, Medical Superintendent, Bloomingdale Hospital, White Plains, N. Y.
 Dr. CHRISTOPHER J. PATTERSON, Physician in Charge, Marshall Sanitarium, Troy, N. Y.
 Mr. EVERETT S. ELWOOD, Assistant Secretary, State Charities Aid Association, New York, N. Y.
 Mr. J. J. MAGILTON, Secretary Retirement Board, State Hospital Employees.

Commissioner MAY: I regret very much to announce that the Chairman, Mr. Strouss, has found it impossible to be present, so we will have to proceed without him. You will doubtless recall at the last conference it was resolved that we should continue the discussion of the subject of heating and ventilation with special reference to hospitals for the insane. I regret to say that the representative of the State Architect's office, who had expected to be present on this occasion and discuss that subject is at the present time in the hospital as a result of an operation for appendicitis, and will be unable to be here.

Mr. Magilton, Secretary of the Retirement Board, has a brief report to make showing the operations of the Retirement Board for Employees during the fiscal year ending September 30, 1913, and has asked for the privilege of making his report at the beginning of the conference.

Mr. MAGILTON: Besides making a report to this body of the Retirement Fund for State Hospital Employees as of September 30, 1913, I expect also to make a few remarks regarding the statistics of the fund up to the present time. The balance of cash on hand at the beginning of the fiscal year, October 1, 1912, was \$25,910.12; receipts for the year, \$72,610.95; expenditures, \$12,382.95. Of the receipts, employees' contributions amounted to \$46,503.67; and the following contributions were received from the State: Lost time, \$19,385.76; commutation, \$418.77; maintenance, \$4,792.50; interest on bank deposit, \$1,510.05. The chief items of expenditure were: Annuities, \$9,470.05; accounting and clerical services, \$2,061.67; office expenses, \$426.17; refunds to employees, \$424.86. The cash balance at the end of the year was \$86,138.12. The fund has certain resources—assets—cash, amounts due from retired employees, accrued interest on bank deposit, etc.; and against these there are liabilities not yet paid, though due, of \$4,451.80, being annuities payable. On September 30, 1913, the surplus of the fund was \$88,621.21.

The amounts given above represent the cash transactions. Below I give the items of revenue and expense involved in the operation of the fund. In round numbers the items in the revenue are: from

employees' contributions, \$47,000; lost time, \$19,400; commutation, \$419.34; maintenance, \$5,000; interest on bank deposit, \$2,250. The expenses were: Annuities, \$13,921.85; salaries, \$2,061.67; office expenses, \$426.17.

Total revenue for the year was \$74,149.77 and the expenses were \$16,409.69.

The following statistics may be of interest:

Since the beginning of the fund to the end of the fiscal year the number of withdrawals was 84. These persons were eligible to withdraw in accordance with opinions rendered by the Attorney-General, after having made contributions to the fund.

The number of persons admitted after having signed against the fund was 29. The number of applications for retirement, men 46, women 28, total 74; withdrawals of applications for various reasons, men 8, women 2, total 10; number of employees retired, men 35, women 20, total 55. Number of deaths or cancellations of retirements, men 3, women 1, total 4; number of applications pending, 9.

While the number retired to September 30, 1913, is 55, at the present time the number is 63, and the amount due to be paid in annuities is now about \$22,000 annually. Of the 55 retired at the end of the fiscal year, eight were on account of physical disability and one injured by accident.

Each month a deposit is made to the savings account from the checking account so that the moneys in the hands of the Comptroller may earn interest as soon as possible. This savings account earns interest at the rate of four per cent per annum, credited semi-annually. The first deposit was made June 3, 1912. There was placed in the savings account each month practically \$5,000. On January 1, 1913, there was \$39,000 in the savings account and for the six months ending on that date \$450 was earned as interest. At the end of the following six months, July 1, 1913, there was \$67,500 in the account and during that six months it earned \$1,060 as interest. On January 1, 1914, there was \$93,000 in the savings account and for that six months it earned \$1,605.20 interest. At the present time there is \$109,000 in the savings account, and there is \$701.87 in the checking account which is used to pay the ordinary expenses arising. Shortly after the first of each month when the hospital treasurer sends the checks forwarded to him from the different institutions, to the Comptroller, they are immediately deposited. The amount of money we have now, \$109,000, will bring \$4,360 per annum to the fund without any further deposits. At the end of the following month we will not make a full deposit of \$5,000, owing to the fact that it being the ending of the first quarter of 1914, enough money must be reserved to meet the annuity vouchers which are payable.

One of the important things to be taken up regarding the operation of the fund for the benefit of the State hospital employees, is the amendments to the law which it is expected will come before the

present Legislature. At the request of your chairman, I am going to read the proposed amendments to the retirement law. (Reads).

Mr. Magilton read the several amendments proposed and explained briefly the purpose each is intended to accomplish. In relation to the proposed amendment to Section 115, he said:

"It is proposed to make a flat deduction of two per cent per month from the wages of all employees entering the service after July 1, 1914; that is, changing the rate of contribution. The present method becomes an intricate problem and is rather cumbersome. After some research in this work last year, we learned both at the different hospitals and at our office that these contributions under the present scale of rates, practically average two per cent, and that it would be fair if all the employees of the State hospitals were contributing on that basis. I may say that other departments or commissions are trying to pass legislation for retirement of employees and they are framing their ideas along the lines of this law, and if they all become involved in contributions, as now provided, it is going to make a great amount of unnecessary work in handling the detail. The adoption of the plan proposed will simplify the matter very much.

In regard to the amendment that payment of annuity is to be made to the date of death, I would say that this merely specifies the time to which payment is to be made. For instance, the United States Government in settling up pension matters, rules that if a person dies within the quarter, the payment which they received last is final. Their heirs are not paid up to the day of death. In our law, it is specified in order to make the matter definite.

The provisions which changes the personnel of the Retirement Board is to insure a medical member being on the Board, which we have not at the present time. In retirement matters where physical or mental disability, or injury by accident is claimed, the medical member is called to pass upon the technicalities which could not be passed on by any other member of the Board."

The abstracts I have read set forth the essence of these amendments without reading them in full and I do not think there is anything else of consequence I can bring forward now, unless some member of the conference wishes to make some inquiry.

Dr. HOWARD: I would like to know why some provision is not made in these amendments for the retirement of the employees who remain in the service and are wrecked by ill-health to such a degree that they are unable to be of any value to the hospital.

Mr. MAGILTON: I think we just covered that, Dr. Howard. By Section 112 it is provided that the Retirement Board shall have power upon its own motion, etc.

Dr. HOWARD: That covers the point.

Mr. MAGILTON: If there are no further questions to be asked, I wish to thank you for your kind attention.

Commissioner MAY: I am very glad Mr. Magilton has been able to attend the conference and go into the subject so fully and clearly as he has done. Some of the amendments proposed I think are very important and will tend to clarify the situation and guarantee the success of the scheme which already seems assured. If there is no further discussion, we will ask Dr. Hurd, in connection with this subject, to make report, which I believe he has prepared on the retirement scheme as applied to officers.

Dr. HURD: The announcement is erroneous in many respects. I am not chairman of the committee on retirement fund for officers and have not prepared a report. I think Dr. Pilgrim has one.

Commissioner MAY: I expected Dr. Pilgrim to make the report but just a memorandum led me to believe you were to make it.

Dr. PILGRIM: I have not a written report to read, but if you will bear with me a few minutes, I will endeavor to tell you just what has been done in the matter. In the first place, after consultation with Dr. Hurd and Dr. Macy, we decided that before doing anything in the way of presenting a bill, it would be best for us to get some figures from an insurance actuary which would show us definitely where we stood and what we might expect. In other words, we thought we ought to get some figures with which we could defend our bill before the Legislature and the Governor. We consulted first with Mr. Fatlock. He was unable to take up that work and after that we found Mr. Fackler, who makes a business of doing work of this kind. He said he would undertake the work for a contingent fee of \$100, with a possibility of continuing the work, and making a report which would be of some use to us, at a cost of \$250. We did not feel like going to that expenditure without being sure of our ground, so we thought it best to consult Mr. Belcher, Secretary of the Civil Service Reform Association. Dr. Hurd, Dr. Macy and I went to see him and had a very pleasant interview with him. He was not at all optimistic. He said he would bring the matter before the Association on the 16th of January and let us know the result and I have received the following letter from him:

[Copy.]

CIVIL SERVICE REFORM ASSOCIATION,
Offices, 79 Wall Street,
New York, January 16, 1914.

DR. CHARLES W. PILGRIM,
Superintendent Hudson River State Hospital,
Poughkeepsie, N. Y.

Dear Dr. Pilgrim:

I submitted to our Executive Committee on Wednesday night the question which we discussed a few weeks ago in regard to the establishment of a retirement system for the officers of the State hospital service.

After a careful consideration of the matter, the committee directed

me to inform you that if a proper system of retirement could be established consistent with the principles laid down in the report of our special committee and prepared only after a thorough investigation of its cost, both to the employees and the State, it would not be opposed by us.

It is only fair to say that before accepting your bill we should want to be assured as to the correctness of the actuarial estimates and the thoroughness of the investigation, and that we believe there are undoubtedly serious difficulties in the way of making such investigation and estimates, due in part to the small number of employees who would be affected by the system. As long, however, as the system is sound in principle and its present and future cost has been definitely ascertained, no objections would be raised to it.

I believe you already have a copy of the report on retirement legislation in New York made by our special committee. If you desire extra copies for any reason, I should be glad to furnish them to you.

Very truly yours,
(Signed) ROBERT W. BELCHER,
Secretary.

I then took the matter up again with Mr. Fackler, who writes as follows:

[Copy.]

FACKLER & FACKLER,
Consulting Actuaries,
35 Nassau St., New York,
January 29, 1914.

DR. CHARLES W. PILGRIM,
Hudson River State Hospital,
Poughkeepsie, N. Y.

Dear Dr. Pilgrim: Your favor of the 26th was duly received.

We have had to make it a rule not to examine papers and express opinion without a fee in advance, so we can not do anything more unless your associates are willing to risk the amount of \$100 on the outcome. At our interview I stated frankly that the number of persons to be effected by the pension system was rather small to give fair averages, but nothing could be determined definitely without a good deal of study, which we can not undertake contingently.

As to the total cost of actuarial advice, I must remind you that in our letter of December 5th it was stated, "We do not think our total charge would exceed \$250—but we do not feel able to state more definitely in advance, as the amount of labor which may be required in such connection very often can not be known until the work is actually done. We can only assure you that we will try to make our charges both reasonable and satisfactory."

Yours very truly,
FACKLER & FACKLER,
Per (signed) D. P. FACKLER.

That put a damper on our efforts, and after consultation with Dr. Macy, Dr. Mabon, Dr. Wagner, Dr. Harris, Dr. Hurd and some others, we decided to let the matter drop for the present and to make only a report of progress.

From what I have learned in regard to the subject, I believe that we are not on very sure and safe ground. I do not think that the scheme which we have outlined will bring in sufficient money to enable us to have the returns in the way of a pension or retirement fund as large as we first thought. I think that our only hope lies in making an amendment to the employees bill and making the medical officers become a part of that scheme, make it one scheme for the whole hospital service, and I believe we could frame an amendment which would convince the employees that we would not be a drag upon their association, and arrange a plan which they would agree to as just and equitable. In doing this, however, I think that we would have to lessen our returns. I think we have expected too big a return for our assessments.

Commissioner MAY: The report is open for discussion. It is a subject of interest to all of us and I would like to hear the views of those present as to the line of procedure which has been suggested by the chairman of the committee.

Dr. HURD: I want to call your attention to one fact. The objection made by the Civil Service Reform Association was that, once passed, the State would be morally bound to contribute to this fund in case it did not prove sufficient. We asked him why he did not object to the employees' bill, in which, as you know, the State contributes about 35 per cent to the fund, on payroll deductions, etc., and he said that had not come to their attention and he was not able to oppose that bill.

Dr. PILGRIM: He said it slipped through without their noticing it.

Dr. HURD: I think 35 per cent from the State would put our fund on a firm basis. It seems to me that with \$109,000 in the savings bank and a 35 per cent contribution from the State, that there are hardly good grounds for refusing to admit all the employees of the State hospital service, officers as well, when it can be shown them that our fund will be almost self-sustaining, if not quite.

Commissioner MAY: I would like to ask the chairman of the committee upon what basis it was suggested that the officers should participate in this fund, what payments should be made and what annuities should be expected.

Dr. PILGRIM: I think Dr. Hurd has those figures.

Dr. HURD: Those figures were prepared for our own bill, not with any idea of combining with the employees. The contributions range from 7 per cent down and the annuities are about half the salaries received.

Dr. PILGRIM: It seems to me that if we could arrange this amendment so that it provided that no officer could take advantage of it

until he had contributed a sum which would amount to the total of twenty-five installments, and if our assessments should be on a scale greater than those for the employees, that it would be perfectly fair. Mr. Belcher of the Civil Service Reform Association suggested, in fact his idea was that legislation should apply to the employees of the entire State. He said his association would not oppose any just and fair amendment. It seems useless for one or two hundred employees to get together and to form an association of this kind when we already have one which certainly, by all justice and fairness, should include officers as well as employees.

Dr. WAGNER: I would like to add my voice in support of the proposition Dr. Pilgrim outlines. It seems to me there should be but one association and some arrangement should be made so that officers and employees could participate in the benefits of the association.

Commissioner MAY: It seems to me that is a highly desirable step to take. I think, however, that something more definite should be agreed upon at this meeting and the committee definitely instructed to take up this arrangement, agree upon it with the Retirement Board and have an amendment introduced at this session with the amendments suggested by Mr. Magilton. I think it would be wise to arrange for a percentage deduction on some flat rate. The Retirement Board has reached the conclusion some time since that a flat rate of 2 per cent would have been just to all parties concerned and would be a saving of an immense amount of labor in the Comptroller's office. It seems to me some flat rate should be agreed upon which would be perhaps satisfactory to all persons concerned, and if we could agree on something of that sort here, the committee should be definitely instructed to go ahead.

Dr. PILGRIM: The sliding rate we figured out last night was equivalent to a flat rate of 5 per cent.

Dr. WAGNER: I move that the present committee be instructed to prepare a schedule of participation with as little delay as possible and to undertake to have an amendment prepared for submission to the Legislature.

Commissioner MAY: Without further submission of the facts to the conference?

Dr. WAGNER: The trouble is there will be no conference before the end of the Legislature. It seems to me this committee should be given power to use its best judgment for the introduction of the amendment that you gentlemen, as Commissioners, would approve of, and we need not await further approval of the conference.

Dr. PILGRIM: As I understood it, any amendment must be introduced this week.

I was put into the position of chairman without my knowledge and am unprepared for the work. Dr. Hurd has all these figures at his fingers' ends. If you will add him to the committee, it will expedite the work.

Dr. Wagner's motion was duly seconded.

Dr. RVON: If you make a flat rate of 5 per cent, we do not know whether the same number of officers will enter into the pension fund as agreed to under the sliding scale.

Dr. PILGRIM: That is immaterial, because if he does not participate he would not be a drain upon the fund.

Commissioner MAY: That was a very important matter so long as it was composed of contributions from medical officers alone.

Dr. HUTCHINGS: I feel sure that the plan will be opposed and successfully opposed by the employees unless they can be satisfied in regard to the sums upon which medical officers expect to be retired. Possibly it would be of some service to this committee if that matter was discussed and the views of the members secured as a guidance to the members of the committee. Some one has suggested that we should propose to be retired upon a smaller proportion than one-half the salary. One-half salary would be a large sum in the aggregate, and, I think, that would be an injustice to the fund and the employees would so regard it. All persons who expected to be retired upon \$1,200 a year or more, should make contributions as much larger than 2 per cent, as the average contributions required are in proportion to the average retirement awarded to employees at the present time. For instance, if the average is \$300 a year, and they contribute 2 per cent, if a medical officer expects to retire upon \$1,200, he should contribute proportionately more. Some such arrangement as that would satisfy the employees they were not being robbed.

Dr. PILGRIM: Last year in going over these figures, we found that a superintendent or any medical officer eligible for retirement would have been obliged to contribute an amount equal to about one year's salary. For instance, in my own case, if I should want to retire, I would have to put in the fund about \$5,000. If I put in that amount and got only \$1,200, if I retired at 65, and was 69 before I got my money back, it certainly would not be a very heavy drain upon the fund. If we are only to receive one-third, and I think a man receiving \$4,500 ought to be satisfied with an annuity of \$1,500 a year, then I think we ought to modify the original idea so as to make it a requirement that we should put in only 50 per cent of our last year's salary before we receive its advantages. It is a thing that requires a lot of study and I think we ought to consider it carefully.

Commissioner MAY: Dr. Wagner's motion, if adopted, will confer upon the committee full authority to deal with this matter. It would save a lot of time and trouble if they confer with the legislative committee of the employees' association and obtain their consent to the introduction of this amendment.

Dr. Wagner's motion was put to vote and carried.

Commissioner MAY: Dr. Hutchings will read a paper on "Heating and Ventilation." As I said before, we expected to hear from the State architect on this subject. Considerable interest was aroused by

Mr. Armstrong's views as an engineer. His views do not agree entirely with those who look at it from the hospital point of view.

Dr. HUTCHINGS: I have really been placed in an embarrassing situation by reason of the absence of the architect who was to present the main paper. I was merely asked to discuss the paper and had prepared a short discussion presenting the medical aspects of the subject. Since he is absent, I shall be very glad to read my paper, but it will not present the whole subject. It will be rather one-sided.

"Heating and Ventilation from the Physician's Point of View." By Dr. R. H. HUTCHINGS.

Any discussion of the problem of heating and ventilating hospital wards will be incomplete without a statement of the medical aspects of the subject. It is proper that the engineers should concern themselves with the economic aspects of the subject; we expect that of them. We look to them to show us how the heating and ventilating apparatus should be installed and operated, that the necessary work can be done in the most economical manner. But engineers should be restrained when they show a disposition to carry economy too far as would be the case if economy at the coal pile were permitted to jeopardize the recovery of the patients in the wards.

In a discussion of this subject which I once heard, one of the speakers told how when it became difficult to heat certain parts of the building he went in and closed the cold air outlets and thereby affected a considerable saving in fuel and kept the wards at the required temperature. It was not stated what effect this had upon the composition of the air in the rooms. It may be possible that there were means of escape for the foul air, such as fire places or other openings which gave egress to air in sufficient quantities to maintain a satisfactory state of purity of the air but it may also have happened that the temperature of the air in the ward was maintained at a sacrifice of its purity. If the latter was true his supposed economy was no economy at all for it defeated the very ends which he was striving to accomplish. It would be analogous to saving money in the purchase of food supplies by giving the patients only one-half enough to eat.

Many methods of heating and ventilating are in use in different institutions and some of them necessarily must be more expensive than others and it does not necessarily follow that the most costly are at the same time the most efficient, but from the physician's point of view efficiency is the desideratum. Low cost of maintenance alone can not recommend a given system.

Heating and ventilation are so intimately bound together that a discussion of the one must carry with it a consideration of the other. The average person breathing 18 to 20 times per minute exhales from 20 to 27 cubic inches of air at each expiration. This expired air has lost some of its oxygen; is saturated with watery vapor and contains one cubic inch of carbon dioxide. At this ratio, each

occupant of a room expels 20 to 25 cubic inches of carbon dioxide per minute or 1,200 to 1,500 per hour. A mixture of carbon dioxide in the air of a room up to a certain degree is unnoticed by the occupants. The external air in inhabited districts contains from two to four parts of carbon dioxide per 10,000. When the carbon dioxide amounts to five or seven parts, a lack of freshness can be noticed upon entering. When ten or more volumes are present, a distinct odor is noticeable. Carbon dioxide is not a poison. Life can be maintained for long periods in an atmosphere containing considerably more than ten volumes of the gas per 10,000, but its presence in the air of our dwellings affords the best means of estimating the efficiency of our systems of ventilation. A statement from the engineers that so many cubic feet of air is forced into a room of given size per hour does not necessarily prove that the air in that room is pure. This can be proven only by an accurate analysis of the air taken at different periods of the day and night. This brings up the subject of the circulation of air. Sometimes registers and ventilators are so placed that the one feeds into the other and there may be in more distant parts of the room areas in which the air may be changed but slowly.

That the air should be in constant motion has not been fully appreciated until recently. In a recent number of a *Journal of the American Medical Association*, an editorial entitled "The Ventilation Problem" emphasizes this point. In referring to a paper read at the Fifteenth International Congress on "Hygiene and Demography," by Henderson, it is pointed out that comparative comfort may be maintained when the air of a room contains a considerable mixture of carbon dioxide, provided the air be kept constantly in motion and says, that much of the discomfort which is experienced in close rooms is due to the stagnation of the air which can be overcome by mechanical means.

Other substances are given off from the body during the process of respiration beside carbon dioxide. In diseased conditions of the body these exhalations are thrown off in greater quantities. They are given off not only from the lungs but also from the skin. These substances are vapors rather than gases. They cling to walls, furniture, bedding and clothing and are more difficult to eradicate than the more diffusible gas, carbon dioxide. These odors are increased when the occupants of the ward have decayed teeth, unclean mouths or certain digestive disorders and they are due in part also to certain volatile substances in the nature of fatty acids given off from the skin and from clothing soiled with perspiration.

Another impurity found in the air of living rooms is dust. Not only may dust carry with it the germs of disease but itself is irritating to the mucous membranes of the nose and throat and produces much of the catarrhal discomfort which is complained of during the winter. Some of this dust, doubtlessly, comes into the ward from the outside

in the air entering the building but much of it originates in the ward, itself, from the clothing, bedding, furnishings and earth that is brought in on the shoes of the patients. This dust is usually not visible, but if an occupied room be partially darkened and a beam of sunshine admitted through a shutter the floating particles in the air will be revealed in such numbers as to make one unwilling to breathe the air.

There are no micro-organisms in ordinary expired air but when one coughs or sneezes he expels into the atmosphere myriads of tiny particles of mucous and saliva from the mouth and throat which may contain micro-organisms which are capable of conveying disease. In our untidy wards where patients expectorate upon the floors and clothing, the germs of tuberculosis, as well as many other pathogenic varieties, are nearly always present in the dust in the air, but other consequences detrimental to health followed the continued breathing of the atmosphere of ill-ventilated rooms. The breathing of such air gives rise to drowsiness, languor, dulness of the mind and headache. These symptoms indicate that poisonous material is either introduced into the body in the inspired air or that the poisonous products generated within the body are not sufficiently excreted by the function of respiration. In either case the effect is the same. When the air in the lungs is saturated with such substances and with too high a degree of moisture it refuses to take up more. Their retention in the blood interferes with the oxidation which normally takes place in the tissues of the body and excrementitious substances are retained in the body and in the blood to the detriment of the health of the individual. Where persons are accustomed to be confined in such atmosphere the acute effects are no longer noticed, but nevertheless a depressed state of nutrition supervenes which is manifested by a condition of pallor, diminished appetite, strength and resistance. Such persons become very susceptible to changes of temperature; a slight draught from an open window will bring on a coryza or localized pains of neuralgic or rheumatic character. Such persons readily fall victims to pneumonia, tuberculosis, catarrhal troubles and anemia from a general lowering of the vital forces. The so-called prison pallor which is noticeable upon men who have been discharged from serving terms in prison is due not only to absence to exposure to sunlight, but also to a large measure from having lived for a long time in poorly ventilated rooms.

Another important point to be taken into account in consideration of the quality of air in dwelling houses is its moisture. The actual quantity of water which air will take up depends upon the temperature of the latter. At 32 degrees F., a cubic foot of air is saturated with moisture if it contains ten cubic inches or about two grains of the vapor of water; but at 100 degrees F., a cubic foot of air can absorb about 100 cubic inches or nearly 20 grains of the vapor of water; so with two grains of moisture to a cubic foot of air it may be

saturated if the temperature is near the freezing point or if the temperature be at 100 it is so dry that it will take up 18 grains more of water before becoming saturated. When the air of a living room contains too much moisture, the evaporation from the skin of moisture as well as of heat is interfered with and languor and even illness may be produced. On the other hand, when the air is unduly dry, evaporation from the skin is accelerated to such a degree that a feeling of chilliness is produced and the disposition is to increase the temperature in the room still higher.

We have all noticed that in summer a temperature of 65 degrees is not uncomfortable, although one may be lightly dressed, but in winter a temperature of 65 degrees in a living room is too low even though one wears heavier clothing; the air of summer is moist, that of the heated room, dry. The moisture content of the air is much more difficult to control than its temperature. Various measures have been recommended but they have not proven to be very practical and are expensive to operate. The most practical is known as the "air washer." The fresh air entering the building, passes through a chamber and is subjected there to fine jets of water which not only impart moisture but remove the dust. Moisture for humidification may be introduced into the air supply by steam jets or by vaporizing water in pans by means of steam coils. It is possible to regulate automatically the relative humidity of the air by means of the humidostat in a somewhat similar manner as the temperature may be automatically regulated, but I am not informed as to the success attending its operation and so have to depend upon the engineers to enlighten us.

On account of the constant variation of the temperature in the outside air in winter, it is not easy to maintain a constant temperature in our wards. The heating apparatus must be constructed to afford ample radiation for the extremest degree of cold and when the temperature of the outside air moderates and the wards become too warm the disposition is to open the windows and moderate the temperature of the air in the rooms by introducing cold fresh air directly from the outside. From the standpoint of the inmates this is an excellent plan for the cold fresh air sweeping in freshens the atmosphere of the room, increases comfort and raises the spirits of the occupants but the consumption of coal goes on at the maximum. This is particularly apt to occur where the temperature of the incoming air can not be regulated by the nurses. The subject of direct and indirect heat for hospitals has been much discussed. Direct radiators have an advantage in making it possible to quickly warm a room and of having a place where patients may warm their hands and feet and where old people and those who suffer more than usually from the cold may find some additional warmth, but such wards are difficult to ventilate properly and though much more economical are inferior in efficiency to the indirect method by which artificially heated air is

brought directly into the rooms. There are some disadvantages in direct radiators. Epileptics and stupid patients are occasionally burned by coming in contact with them and in the untidy wards they are not easily kept clean. In toilet rooms, kitchens and laundries special provision should be made for forced ventilation by which the air may be more rapidly changed than in other parts of the building. This may be done by special ventilators with exhaust fans.

In concluding I would suggest that in order to provide sufficient ventilation for our hospital buildings there should be ample window ventilation for summer which should also be used to some extent in winter; a supply of pure air heated to not more than 100 degrees and in quantities that will supply from 60 to 100 cubic feet per minute to each occupant of the room in ordinary rooms; toilet rooms, kitchens and laundries should be provided with forced fan systems of ventilation. The air should be rendered free from dust by cloth filters or preferably by a system of air washing. The humidity of the air should be regulated so that with an inside temperature of 68 to 70 degrees the air should contain at least 50 per cent of humidity. The ventilating system should be sufficient to maintain the air in the day rooms and dormitories at from 68 to 70 degrees with no more than five to six volumes of carbon dioxide in 10,000. The air should be kept in constant circulation.

Commissioner MAY: I think Dr. Hutchings is entitled to the thanks of the conference for the time he has devoted to the preparation of this paper on a subject which is very important to all of us. I would be very glad to have any discussion of this paper, or any questions which Dr. Hutchings may be able to answer for us.

Commissioner MAY: I will ask Dr. Hoch if there is any report from the committee on the study of the alcoholic psychoses.

Dr. HOCH: The only thing which I can report regarding the work on the alcoholic psychoses is progress. We have already received some interesting cases which are being studied.

Commissioner MAY: I hope the superintendents of each of the institutions will urge upon the members of the staff the necessity of making further reports.

Dr. HUTCHINGS: May I say, in justice to the assistant physicians, that the preparation of these cases requires considerable time, and I am sure that at Ogdensburg we have a considerable number under way which are not yet completed, and I think the same is true in other hospitals. Some of these will within a short time be submitted, and others along as they are finished, but to work out a case properly requires practically a psychoanalysis, and some of them I think must be thirty or forty pages in length.

Dr. HOCH: You have sent some very good cases. Some of the hospitals have sent a few cases, but they are very excellent.

Commissioner MAY: Dr. Hutchings will present the report of the committee on statistics and forms.

Dr. HUTCHINGS: The report of this committee to-day relates to the certificates to be issued to assistant physicians at the various hospitals, and to certificates to be issued by the State Hospital Commission to superintendents and other medical appointees of that department. The committee has considered up to the present time two of these certificates, both for medical officers, one to be issued by superintendents to members of the staff and another, somewhat more ornamental, to be issued by the State Hospital Commission. These have already been submitted to those members of the conference who have been around the hotel this morning and I think we might pass them around for suggestions from anyone present.

Commissioner MAY: I would like to ask the chairman of the committee to defer any further consideration of this subject while the Executive Auditor, Mr. Quinn, submits a matter which is very important to the hospitals.

Mr. QUINN: The proposition is simply this: The Governor some time ago had his attention called to the fact that the State was paying different prices for coal in different departments. Some of the departments were getting coal a great deal more cheaply than other departments. Some of the departments had instituted a B. t. u. system which the other departments had been unable to get. After discussion with various people, including the Mayor of the city of New York, he thought he would try to get the different departments to co-operate in the matter. He recognized that the law provided that the different departments should do their own purchasing and had no intention or desire to interfere with the matter in any way, but he figured if the various purchasing committees could get together—it entails the services of a consulting engineer—and advertising these specifications, the State would be able to ask for bids on about a million dollars worth of coal at once, instead of asking for bids on lots of twenty thousand dollars and upwards. The various departments were asked to express their ideas, the Fiscal Supervisor, the Prison Department, the Trustees of Public Buildings, and the State Hospital Commission. Dr. Howard told me the purchasing committee might have some questions to ask me. If anybody has any particular thing to ask me, I would like to answer it.

Commissioner MAY: I am very glad Mr. Quinn is able to be present at this time. The purchasing committee has devoted a great deal of time and consideration to the subject of purchasing coal. We have purchased coal on almost every conceivable basis that can be suggested. Several years ago a representative of the Fuel Engineering Company made a suggestion that considerable economies could be affected by purchasing on the B. t. u. basis. The Commission and the purchasing committee at once took the subject up and secured the services of Baird Halberstadt, who was one of the most eminent consultants in engineering and coal matters in the country. We paid him a considerable salary for his advice, and also Mr. Armstrong of

New York, who drew up the specifications. We then found that the largest coal companies who are producers, and supply most of the coal, would under no consideration undertake to bid on a B. t. u. specification. For this reason, we prepared a modification of the B. t. u. scheme which provided only that there should be a certain number of B. t. u.'s in the coal and that the coal must not fall below those requirements. It did not provide for any premium or penalty basis, such as coal is purchased on in the Prison Department now. As I said before, none of the larger companies which produce the coal generally used in the institutions would consider bidding even on this modification of the B. t. u. scheme, but we prepared our specifications and obtained bids and awarded the contracts to the lowest responsible bidder in each case. The result was that many persons who were awarded contracts were unable to make deliveries. Others made deliveries at very irregular intervals, and still others furnished coal which was practically useless when it was obtained. Some of the contracts had to be cancelled and we had to purchase coal in the open market at prices considerably higher than we had paid in many years. The superintendent of the Hudson River State Hospital called my attention to a loss of five thousand dollars at least in the purchase of coal for his institution alone. I am unable to state just what the loss was in other hospitals. During the present year, however, contracts have been made by the Manhattan, Central Islip, Kings Park and Long Island State Hospitals for the purchase of coal on a premium and penalty B. t. u. basis. I should be very glad to know just what success has attended their efforts.

On behalf of the conference and the Commission, I wish to assure the Governor through the Executive Auditor of the hearty co-operation of the department, and if there is any method by which we can purchase coal at a lower price than we are paying now, we would be very glad to know it. I would like to have the representatives of the various institutions ask questions of Mr. Quinn, and let him know the way this scheme might be affected, and would affect their institutions.

Dr. HOWARD: Mr. Chairman: The preliminary discussions of the purchasing committee relative to this matter met with a great desire on the part of the hospitals to do just as well by the State as they possibly could in the purchase of coal, but also with quite a stormy talk relative to the difficulties that we were very sure we were going to get into if we went into any such arrangement as was tried a few years ago. Is it thought that there would be a lower price?

Mr. QUINN: Yes.

Dr. HOWARD: Is it a fact that New York City got lower prices?

Mr. QUINN: Yes; much lower than we did.

Dr. HOWARD: Does the coal come from some local dealer?

Mr. QUINN: As I understand the New York situation, their contracts are five times as much as ours would be in total, are underwritten by the big companies and distributed by them.

Dr. HOWARD: All the agents of the big companies?

Mr. QUINN: All the big companies, they handle it themselves, it is such a big proposition.

Dr. HUTCHINGS: We get coal from an Ogdensburg company, a very large concern handling about a million tons annually, which supplies all of the railroads in that part of the State and over into Canada. They handle the grade of coal known as "Reynoldsville", a standard quality of coal mined along the lines of the Buffalo, Rochester and Pittsburgh Railroad. They submitted a bid under this B. t. u. plan referred to and our relations during that year were very unpleasant. Occasionally the coal would show a considerably higher value than the minimum requirement and there was no way of reimbursing the company. Occasionally, on the other hand, it would drop below the requirements and we would deduct from their bill, and as I said, it resulted in a great deal of confusion and the company seemed very dissatisfied.

A few days ago I spoke to the president of the company and asked him if he would make any suggestions about how such a contract might be drawn up again to avoid these difficulties and he was very positive in his statement that he would never again bid on the B. t. u. basis. He would be very glad to bid on the standard grade of coal which, he says, is as well known as granulated sugar, but he says, if there are any restrictions along the line of that former contract he will decline to bid under any consideration.

Dr. ASHLEY: Our experience at Middletown with coal bought by contract on the B. t. u. basis has not been extensive. For a short time we had a contract for coal on the above basis but the coal delivered proved upon analysis to be of an inferior grade. In other words, it was not up to the specifications and was rejected. The contractor, however, immediately following the rejection, urged the hospital to accept the coal, even at a reduction in the price, as he claimed that if he was required to remove the coal it would be a hardship for him, inasmuch as he had to pay \$5.00 switching charges on each carload of coal delivered, he would be compelled to pay for the reloading of the coal, \$5.00 more switching charges and the additional freight. We finally compromised and accepted the coal at a reduction of fifty cents per ton on the contract price. We would be very glad indeed to purchase coal on the B. t. u. basis if we could receive satisfactory deliveries and if this would result in any saving whatever to the State. The difficulty at Middletown in buying coal on this basis is, I think, very similar to that of most of the other institutions. The coal is usually delivered in several carload lots. A sample is taken from each car and sent to a chemist for analysis. In the meantime the coal is unloaded in one common pile at the hospital bunkers. It takes some ten days or two weeks to obtain the results of the analysis and usually when the analysis is received the coal is mixed and frequently much of it has been used, and it would be practically im-

possible to separate the carloads of coal which prove to be defective from good deliveries. Our track facilities are too limited to permit us to hold the loaded cars until we obtain the result of the analysis. Even had we sufficient trackage it would not be practical to hold the cars pending the result of the analysis, as we would be required to pay demurrage.

Another objection to this method is the cost of the analysis. I believe that the average car of coal has about thirty tons and that it costs the price of about one ton for every analysis. In other words, one-thirtieth of the cost of the car of coal has to go for analysis.

I have been informed by some of the larger dealers in coal that when they bid on the B. t. u. basis, they usually bid a higher price, in order that they may be protected if the coal is rejected. In other words, we do not get as low a figure when buying on the B. t. u. basis. We have not been able to get very much competition at Middletown in our bids for coal. It appears that the territory is limited to certain dealers. I believe that the coal business on the Erie line is limited to but two firms.

Dr. WAGNER: We burn about twenty thousand tons of coal every year and we have made some exhaustive experiments in the use of coal in the years gone by. We have tried to buy coal on the B. t. u. basis and we have had exactly the experience the chairman mentioned with the big corporations. One railroad company represented by Williams & Peters absolutely refuses to submit any proposal whatever on the B. t. u. basis. They have stated to us that their coal is standard, they furnish it from well known mines and its reputation is well established, but they will not submit a proposal on the B. t. u. basis.

The net result of our experiments with the use of coal I may perhaps state in this way: That we have made chemical analyses at our laboratory where the analyses are made for the entire State—other institutions sending their samples—and we have made many boiler tests to show how much water is evaporated by a pound of a given coal. We have reached the conclusion that the boiler test is the only reliable test for our purposes.

Now, after trying different kinds of coal, measuring up the quantity of coal used and the amount of water evaporated we have found that a combination known as Bernice screenings with about fifteen per cent of soft coal will evaporate more water for a given amount of money than any other combination that we can use. We have repeatedly made the tests and found these results. We understand from the Engineering School at Cornell University that the University has pursued the same line of investigation and has adopted the same combination of coal that we have adopted, namely, the Bernice screenings about eighty-five per cent and soft coal about fifteen per cent.

This question of B. t. u. is all right so far as it goes, but it does not take into consideration the question of freight rates. It costs practically as much to bring a ton of coal dust that has very little heating

power to Binghamton as it does to bring the best coal in the world. There is a point between the worthless dust and the high priced coal where the greatest economy value at the boiler for the cost comes in. We believe that we have reached that point when we make this combination of screenings at \$2.22 a net ton and soft coal at \$2.56 a net ton. We have not only the Cornell University Corps of the Engineering School to support our contention, but we have taken it up with a number of commercial plants that have investigated the coal question thoroughly, and have found that they have reached the same conclusions. The Binghamton Street Railway Company, and the Endicott Johnson Shoe Company, a tremendous corporation, use the combination we use, and several other large corporations are doing the same thing. We are satisfied that we could not improve things by buying any kind of coal on a B. t. u. basis, but if it is believed by Governor Glynn and his advisers that the experiment should be tried further, we are perfectly willing to enter heartily into co-operation and make further tests and make further trial and to do it honestly and fairly.

Dr. ELLIOTT: We consume about twelve thousand tons of coal at the Willard State Hospital, and we have practically the same number of patients as at Binghamton. For many years it was the practice at Willard for the hospital authorities through the steward to obtain bids from the various dealers and forward the bids and our conclusions to the Commission for approval, but two years ago when the time came to make the contract for another year's supply and we were instructed by the Commission to do so, at the last minute, after the bids were in and we were ready to award the contract, we received word that the coal was to be contracted for by the purchasing committee on the B. t. u. basis and that meanwhile we were to continue the old contract which was just about to expire. At that time the Rochester & Pittsburgh Coal Company were supplying us with coal; they were willing to continue to furnish it at the contract price for the previous year, pending a contract being made by the purchasing committee, and did so for two or three months, and then all at once they stopped delivering. We were subsequently informed that as only one bid had been received the purchasing committee was unable to make a contract. Meanwhile, there had been a great deal of talk of a strike and the price of coal advanced to a great extent, and we had to go into the open market and purchase anywhere we could at enormously increased prices. We were almost out and it was then in the month of January, the latter part of January, with the worst of the winter still before us. The failure to renew the contract, which we could have done in the previous autumn, resulted in a loss of several thousand dollars to the State in that one year.

During the following year the purchasing committee made a contract with a firm who were jobbers, so-called. The result was the company was unable to meet the needs of the hospital either as to

quality or quantity. The coal delivered was of very poor quality, exceedingly poor, and not up to the specifications; furthermore, they were unable to deliver it in sufficient quantities for current needs, and we were again put to a great deal of unnecessary expense and extra work. Experience has shown at Willard that we have been able to purchase to the best advantage to the State when we were allowed to exercise our own judgment in the matter. That has been our experience for several years and the records will show it.

Dr. PALMER: The situation at Utica is somewhat peculiar and I suppose differs from that of every other hospital in the State in that we have no storage capacity for coal. The matter of letting the coal contract depends upon the successful bidder being able to make daily deliveries to the hospital, that is to say, he must have storage capacity and the necessary teams, and these conditions limit the dealers who can bid to a rather small number. Most of the coal reaches Utica over the Delaware, Lackawanna and Western Railroad and the New York, Ontario and Western Railroad, and the contractor must govern his bid by his arrangement with the railroads. If the hospital were differently located and a spur track could be run to the institution grounds with the necessary storage capacity, it would be of great advantage.

Within the past month, I have conferred with one of the chief coal dealers in the City of Utica in regard to the purchase of coal on the B. t. u. system, and he says very frankly that he will not bid on this system.

We use about 7,000 tons a year.

Dr. SOMERS: The quantity of coal we use at the Long Island State Hospital as every one knows is probably the smallest amount of any State hospital. The coal is carted there daily, furnished by the Bacon Coal Company. We, each year in letting the contract, have difficulty due to the fact that as a rule not more than two bids are received. For several years the successful bidder has been the Bacon Coal Company, who seems to be willing to bid and have the carts to bring the coal to the institution. This coal, excepting ten per cent of soft coal, is No. 3 buckwheat. The contract is based on the B. t. u. standard and analyses are made from time to time and frankly no report has been made to me as to difficulties and no statements have been made to me as to deductions or excesses, because of the analysis of the coal upon this basis. I understand in the past, however, there has been considerable trouble because of furnishing coal upon this basis, but practically none within the last year. Beyond that, I can not tell you.

Dr. WAGNER: I may say this: In talking the subject over with our chemist, who makes these analyses, he told me that it was a difficult and laborious thing to obtain a proper sample of coal from a carload so that a reliable analysis could be made. He stated that if you take the coal from one end of the car, or from the exposed coal, or

coal from different places on the top of the carload, you may get a sample which does not fairly represent the entire carload; that it is necessary to take samples from the surface, in different parts of the car, to go down a foot or so in different parts, and go two or three feet in these big cars to get representative samples from all over the car; then thoroughly mix them; then quarter them; repeat this process several times, to get the sample which is to be finally analyzed and which represents that entire car. He told me not long ago of a report he made for the Kings Park State Hospital, that was followed a few days later by a report that the company had analyzed that car of coal and found it much higher in B. t. u.'s than our chemist had reported. A portion of that same sample was sent to another laboratory, I have forgotten the name of the laboratory, and their analysis agreed very closely with that of our chemist. The company's chemist may have been perfectly honest, but his sample may have represented a different part of the carload of coal and the B. t. u.'s may have stood up in that part of the sample to 14,000, whereas in the sample Mr. Nelson analyzed, they fell below 12,000. That is a very important matter in the determination of the B. t. u.'s in the coal, there always will be a difference of opinion, and unless a very careful, painstaking and expert sample taker is employed, you may not have a sample which represents the carload of coal fairly.

Dr. HURD: I have been off the purchasing committee for some months. When I was on the committee, our experience with coal was not favorable. Many of the best firms refused to bid, and one, at least of the firms that *did* bid, had to be relieved at a special meeting of the Commission, because it was not able to carry out the contract. I have been told that conditions have changed.

Personally, we felt discouraged in trying to buy that way. It sounds well theoretically to say, "You find out what you are buying, and pay for just what you get." Practically, coals vary so much for different reasons, that it is very difficult to work out in practice, in our estimation.

I understand, however, that Kings Park and some of the metropolitan hospitals have been buying on that basis lately; of course my experience is not so recent.

Dr. HAVILAND: Mr. Chairman: When Kings Park State Hospital first purchased coal on the B. t. u. basis, there was some trouble, consisting in differences as to the results of the analyses. On one or two occasions we had to send to an outside laboratory when the hospital analysis varied considerably from that made by the contractor. However, not only in the specific instance mentioned by Dr. Wagner, but in every analysis made by an outside laboratory, the result was to sustain the hospital's contention, so the expense of such analysis fell upon the contractor and settlement was made upon the basis of such findings.

This season we are still on the B. t. u. basis, and we have had prac-

tically no trouble, perhaps because we are under a larger contract, it being for Manhattan and Central Islip State Hospitals, as well as for Kings Park.

The point raised as to the transportation charges increasing coal cost is very important, particularly with us situated on Long Island, at a greater distance from tidewater than some of the hospitals. However, our per capita coal cost last year, was the third lowest in the State, such result being possible, in spite of transportation charges and extra demands for coal, largely because with the forced draught system now in operation, we can use a mixture of soft coal and the cheapest grade of buckwheat coal, at a cost of approximately \$2.80 a ton.

Commissioner MAY: Are you getting the coal any cheaper on the B. t. u. basis?

Dr. HAVILAND: Yes; because we pay only for the heat producing units received, regardless of bulk or weight, as such.

Commissioner MAY: Are the savings due to the method of purchase, or the remodeling of the heating plant?

Dr. HAVILAND: I think it is due largely to the remodeling of the heating plant, but the method of purchase is an important factor.

Commissioner MAY: The entire system has been remodeled and practically everything has been changed throughout the heating system.

Dr. HAVILAND: There are so many elements entering into per capita coal cost, that it does not seem fair to consider only single elements. For instance, we have to depend on driven wells for our water supply. Pumping our entire water supply of course entails a much larger consumption of coal than in institutions having city water. During the past year we have had to supply steam to contractors, with resulting increased coal consumption. And so in every institution local conditions modify results and should be considered in interpreting per capita costs.

Commissioner MAY: Who were the companies that bid, did you receive bids from the large producers?

Dr. HAVILAND: There were several large firms and a number of smaller ones who bid on the specifications, containing the B. t. u. requirements and there appears no reason to doubt there will continue to be sufficient bidders, especially on a large or combined contract for several hospitals, such as the one under which we are now operating.

Dr. HEYMAN: Dr. Haviland's remarks cover the conditions as they exist at Central Islip exactly. I do not think I have anything to add, except to say we would be very glad to enter into any plan whereby Central Islip could purchase a better quality of coal at a cheaper rate.

Commissioner MAY: Has any saving been effected by the new system of purchase?

Dr. HEYMAN: I could not say.

Mr. MANRO: About two years ago the warden of Auburn Prison asked me to bid on their coal supply on the B. t. u. test. I took it up with the company I have bought coal of for several years and they informed me they did not care to bid. They stated if they did bid on this test, they would ask such a high price they would not get the order. They did not make the bid and it was afterwards let to some New York company and it came along in the winter time and the warden could not get any coal. He was up against it and he came to me and wanted to know if there was any way he could get some coal. At that time it was quite scarce, but I took it up with the company and finally was able to get some coal for him at quite a large premium over what he had been paying, and got enough coal to tide the institution over. He informed me the coal he had been getting on the B. t. u. system had been falling short of the test and there was quite a little due and coming to the prison on that account, and also the man was to make up the premium on what they had paid over the contract price. The last I heard they were having a law suit over it.

My experience is that no large company that sells good coal is going to sell on the B. t. u. system unless they charge a premium for doing so. I agree with Dr. Wagner that the boiler test is better than the B. t. u.; also, that no one car all the way through will come up to practically the same test; sometimes you will get in several cars together and they will vary quite a little, so that you will have to make a test very often and you will find some cars will come up to test and a lot will not. It would require the work of several chemists to make the tests on coal for all of the State hospitals, which would mean a large expense.

Commissioner MAY: One chemist alone could not handle the work. I do not think we ought to ask Mr. Quinn to devote any more of his time to this discussion.

I wish to assure him he will have the entire co-operation and support of this department in the purchasing of coal. I have had the feeling, however, that it would be well to hear the views of those who have been purchasing coal for the various institutions for a good many years. I would like to ask Mr. Quinn if he cares to say anything further.

Mr. QUINN: I do not think the Governor would blame the purchasing committee of the State Hospital Commission much for not being enthusiastic after the experience which they have had. He has taken that into consideration in thinking this over. But he does know the Fiscal Supervisor told him the department was saving money, just as the Prison Department say they have saved money on this plan. Yesterday the Mayor of the City of New York was in Albany and I took occasion to talk with him about it, and he told me they had saved a lot of money, that they had got \$50,000 in penalties alone last year. With these facts before him, the Governor is anx-

ious to have it tried by the State. He is informed by an engineer in whom he has confidence that the State can save \$250,000 a year; perhaps it will not be so great a saving, but it certainly is well worth trying. I wish to thank everybody for giving me the information they have about it.

There will be a meeting to-morrow afternoon I think of the various departments and if the purchasing committee of this department wishes to have a representative there, I would be very glad to have him come. I wish that representative could be supplied with the coal needs of the department. The Governor's idea is to ask the various institutions to let him know the various kinds of coal, and by combining the requirements, overcome the difficulty you have had to contend with, namely, having companies able to dictate to the department. I think no company would dare to refuse to bid on a million dollar proposition offered by the State of New York. What the newspapers would say if they tried to hold us up on this proposition, they would not dare to face. If we can combine the strength of every department to assist those institutions, I think we will be able to save a lot of money, anyway, if not a quarter of a million, at least \$100,000.

Commissioner MAY: We shall be very glad to co-operate with you.

Dr. HOWARD: Mr. Manro told me when this matter was up that he wished the purchasing committee would call the superintendents' attention to a condition which is expected soon in the coal supply and I would ask that he explain this to the conference.

Mr. MANRO: The contract with the miners expires April first and there will either be a suspension for a time, or may be a strike. I would suggest that all the superintendents see that a sufficient supply of coal, especially soft coal as this does not apply to anthracite coal, be on hand to tide them over to warm weather, for I think all shippers will not be able to ship right after April first for a while anyway.

Commissioner MAY: I will ask Dr. Howard, chairman of the purchasing committee, if he will be kind enough to have the committee or a representative of the committee, present at the meeting. We certainly ought to be represented there and we ought to make our views known and make our experiences along this line clear to those who are engineering this proposition. I think it would be very well for the committee to get some more detailed information regarding the situation in the metropolitan institutions where they have bought coal on the B. t. u. basis.

Mr. MANRO: Some of the metropolitan hospitals have bought the anthracite coal and of course there is not the difficulty with that as with the bituminous coal. I refer especially to Kings Park and Central Islip. They use buckwheat anthracite coal. Of course it is not very difficult for a dealer to guarantee that. It is with the bituminous coal where the situation is more difficult.

Commissioner MAY: If coal can be bought to advantage in the metropolitan hospitals on the B. t. u. basis, it certainly is a proposition worthy of very careful consideration.

I will ask Dr. Hutchings to continue the report which it was necessary to interrupt, as chairman of the committee on statistics and forms.

Dr. HUTCHINGS: I had said about all I had in mind. We offer these forms of diplomas to the conference as satisfactory to the committee, with this modification, that the name of the institution from which the physician is graduated need not be emphasized so greatly as appears upon this certificate, but that it be left a blank to write in in script. It is proposed to issue a certificate to each physician above the grade of medical interne, who is appointed upon the staff of the different hospitals, after the expiration of a probationary period which does not exceed three months.

The question has been brought up that internes who have served for a year and who retire to private practice would wish to have such a certificate and that it would be proper to issue one for the year's service, but Dr. Ashley has made a very good suggestion in that line I think, and that is if the interne wishes such a certificate, he should pass the examination for assistant physician and then retire. Otherwise we are apt to issue certificates to men who are very poorly informed in psychiatry. A man might have such a certificate, go into private practice and have very little knowledge of the subject. That would be avoided by issuing the certificate only to those who have passed the examination for assistant physician.

The other certificate is to be issued by the State Hospital Commission in making medical appointments in this department.

Commissioner MAY: Was it your idea that these certificates used by the various hospitals were to be printed in one place.

Dr. HUTCHINGS: It is believed by the committee that we would be obliged to secure them from the State Printer, unless we could secure a waiver from the printer, and that we thought could be done if we made the request, and we could then secure competitive bids. In order to get some idea as to the cost of the certificates which you have seen, they were submitted to a local engraving concern and this concern has quoted on them at \$125 in script for the plate, and \$275 for the square letter. On imitation parchment the price for printing from the plate is 40 cents each. I understand that they will furnish us with the plate for this price, or keep the plate and print them for 40 cents each.

Commissioner MAY: Is there any discussion of this report?

Dr. ASHLEY: I move the adoption of the report and suggest that we ask other engravers for a figure before we accept this. It seems to me the price is high and we can expect better figures.

Commissioner MAY: It is moved and seconded that the report be adopted and the further disposition of the matter left to the committee.

The motion was carried.

Commissioner MAY: I would like to call attention to a few bills introduced in the Legislature which interest this department materially before we adjourn.

1. An amendment to the Insanity Law in relation to the wages of firemen. This provides the payment of \$65 per month to firemen in eight-hour shifts and strikes out firemen, twelve-hour shifts.

2. The concurrent resolution of the Senate and Assembly providing for a constitutional amendment, the so-called short ballot bill. This greatly augments the powers of the Governor in the matter of appointments and removals, without the check now provided by the State Senate.

3. A bill amending the Civil Service Law as to the qualifications of persons employed. They are not to be appointed unless they have been residents of the State for at least one year. This would seriously handicap some of the institutions in employing attendants.

4. The use of the rifle range at Creedmoor, Long Island, as a site for an aviation park.

5. Amending the Insanity Law as to the designation of certain officers of the State hospitals, including pharmacists.

6. Amending the code of criminal procedure by which the defense of insanity is abolished.

A law providing for the assessment of lands owned by the State in the County of Orange. Should this become a law, it would require the State to pay taxes on the Middletown State Hospital property.

I have mentioned these very briefly thinking it is possible you may wish to take some of these questions up with the senators and assemblymen of your districts.

I am going to ask Dr. Howard to make a short statement regarding the bill amending the Public Health Law relating to the practice of nursing.

Dr. HOWARD: I have but little to say with regard to this bill. Its provisions are well known to all of you. It limits the use of the word "nurse" to registered nurses, with the exception of services as nurse in the State hospitals for the insane. The bill is creating a great deal of discussion throughout the State among physicians and nurses, but the interior workings of the hospitals are not affected thereby. Of course our graduates who are not registered nurses, after they leave the State hospitals, must under this bill drop the use of the term "nurse", but while in the hospitals they may be paid as nurses the same as they are now.

Commissioner MAY: I would like to ask if there is any discussion of the amendment regarding the wages of firemen.

Dr. WAGNER: I would like to say just a word on that. It seems to me that with eight-hour firemen paid \$45 and maintenance, to raise them to \$65 would be a very great advance, but, I have no objection to offer if the Legislature and people of the State want to pay firemen at that rate in our hospitals. At Binghamton we find many attendants

who want to become firemen. We promote attendants to that work at the wages now paid. We find always a surplus of candidates for the eight-hour positions at \$45 per month and there does not seem to be a crying need for the increase. What is vastly more important in my opinion, is the proposed amendment to the law which requires elaborate legal procedure when it comes to the question of dismissing an unsatisfactory employee. Such elaborate procedure is entirely unnecessary.

On motion of Dr. Ashley, duly seconded, the conference went into executive session.

During the executive session the conference discussed the proposed amendments to the civil service law, raising the wages of State hospital firemen and other legislative matters.

On motion the conference voted to end the executive session.

On motion, the conference adjourned.

LEWIS M. FARRINGTON,
Secretary of the Conference.

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TABLE OF CONTENTS

	Page
1. A Study of Brain Atrophy in Relation to Insanity, by Dr. A. J. Rosanoff,	169
2. A Statistical Study of 1,739 Patients with Alcoholic Psychoses, by Horatio M. Pollock, Ph. D.,	204
3. Dementia Præcox, Paraphrenia and Paranoia, (Review of Kræpelin's Latest Conception), by Dr. George H. Kirby,	269
4. Some Contributions of Psychoanalysis to the Problems of Education, by Dr. Charles R. Payne,	281
5. Minutes of Quarterly Conference, May 7, 1914,	286
Discussion of Voluntary Patients,	287
Training of Assistant Physicians at the Psychiatric Institute,	293
Discussion Regarding the Methods of Purchasing Supplies for the State Hospitals,	294
Discussion of Recommendations Regarding the Pur- chase of Eggs,	298
Discussion of Imported Beef Contract,	302
Informal Discussion Regarding Statements in the Public Press,	304

A STUDY OF BRAIN ATROPHY IN RELATION TO INSANITY.

BY A. J. ROSANOFF, M. D.,
Kings Park State Hospital, Kings Park, N. Y.

CONTENTS.

Introductory remarks.

- I. Method of Investigation.
- II. The Material.
- III. Correlations between Index of Atrophy and Age and State of General Nutrition.
- IV. Correlations between Index of Atrophy and Nature of Psychosis, Degree of Mental Deterioration, and Duration.
- V. Further Comments on Method in the Light of the Results.
- VI. Summary and Conclusions.

Among the commonest findings at autopsies in cases of insanity is that of brain atrophy. Such atrophy is generally recognized and roughly measured by shrunken appearance of the cerebral convolutions with corresponding widening of the sulci, excess in the amount of cerebrospinal fluid, and reduction of the brain weight. Observations of this kind, however, do not afford a precise measure of atrophy, and therefore the finer correlations that may exist between the atrophy and the clinical data must inevitably escape notice.

Several years ago these considerations led the writer, then working with the collaboration of Dr. John I. Wiseman, to devote his attention to the development of a practical method for the precise measurement of brain atrophy. The method which was worked out, and a description of which was published in the early part of 1911,¹ has since been employed regularly at this hospital and to a considerable extent also at the State hospitals at Worcester and Westborough, Massachusetts. In all, measurements have thus

far been made in four hundred and fifty-two cases and a study of the data has revealed some interesting correlations. The object of this paper is to present both the data and the results of their study.

I. METHOD OF INVESTIGATION.

The method is based on the assumption that a fairly constant relationship exists normally between cranial capacity and brain weight, so that in any case, both being given, the degree of atrophy may be determined by calculation.

The details of the technique employed for the estimation of cranial capacity are as follows:

The skull is opened by an angular or so-called undertaker's saw-cut instead of the usual circular one, care being taken to avoid extensive cracking of the skull cap or chipping out of large fragments of bone; the dura is incised and the brain removed in the usual manner. The dura is then carefully stripped from the base of the skull and cut away by a circular incision made as far below the foramen magnum as possible; the foramen magnum is closed by means of a cork stopper of suitable size which is pressed down until its upper surface is on the same level as the bone around it. The base of the skull is now filled with putty, small lumps being used at first which are carefully pressed in so as to fill all irregularities; the calvarium is filled with putty in a similar manner, a slight excess being used, after which it is put in place and by pressing down upon it part of the excess of putty is squeezed out through the saw-cut. The next step is to fit the calvarium over the base of the skull as exactly as possible, and here slight irregularities and the angle in the saw-cut are very helpful; the final fitting is accomplished by gently tapping with a wooden or rawhide mallet on the top of the skull and carefully removing the excess of putty as it appears through the saw-cut.

During the operation the hands are kept well moistened to prevent the putty from sticking to them. Generally the moisture which covers the inside of the skull is sufficient to prevent the putty from sticking to the skull bones; some-

times it does stick in places, but it can always be easily and completely removed.

The putty used for this purpose is much softer than glazier's putty, a quantity of the latter being mixed with some linseed oil and kneaded until it has the desired consistency; if it thus happens to be made too soft it may be made firmer again by the addition of some whiting. The putty is kept under water; this prevents it from drying and avoids the necessity of softening it afresh every time that it has to be used.

For measurement two glass cylinders are used of 2000 c.c. and 1000 c.c. capacity respectively. The smaller cylinder is filled with water up to the 1000 c.c. mark. About 200 c.c. is then poured over into the larger cylinder and the putty from the cranial cavity is put into it, preferably in rolled lumps which are allowed to slide down the side slowly while the cylinder is held in an inclined position, the object being to avoid splashing of the water. After all the putty has been transferred to the cylinder and pressed down with a moistened wooden stick or stout glass rod, more water is poured in from the smaller cylinder until the level is exactly at the 2000 c.c. mark, care being taken to release by means of the wooden stick or glass rod any bubbles of air that may have been caught between the lumps of putty. The reading is now taken on the smaller cylinder. By deducting from 2000 the number of cubic centimeters which have been taken from the smaller cylinder to fill the larger one the number representing the cranial capacity in cubic centimeters is obtained.

In order to test the trustworthiness of this method it has been practised in a number of cases twice, the assumption being that the frequency and amount of the discrepancies that may be found in the results of the pairs of estimations would furnish a fair idea of the magnitude of probable error. Table 1 shows the distribution of the discrepancies that have been found, expressed in percentages. It will be seen that a discrepancy to the extent of 1 per cent or over has occurred in but three cases out of a total of two hundred and forty-three, and that in about three-fourths of the cases

the extent of the discrepancy is less than 0.5 per cent. It may be added here that in the cases in which two estimations have been made, the average of the two has been used in the work.

TABLE 1. DISCREPANCIES BETWEEN DUPLICATE ESTIMATIONS OF THE CRANIAL CAPACITY.

Extent of discrepancy expressed in percentages.	0—	0.1—	0.2—	0.3—	0.4—	0.5—	0.6—	0.7—	0.8—	0.9—	1.0—
	0.09	0.19	0.29	0.39	0.49	0.59	0.69	0.79	0.89	0.99	1.25
	%	%	%	%	%	%	%	%	%	%	%
Number of cases	16	34	41	53	37	19	23	10	5	2	3

For a discussion of other methods for the estimation of cranial capacity that have been proposed we would refer the reader to the paper already mentioned;¹ we would, however, quote a remark concerning a most recently suggested method, namely, that of Reichardt:² "It must be noted that Reichardt does not claim for his method absolute accuracy. He maintains merely that with the exercise of some care the error involved in the use of his method may be reduced to within 50 c.c., and he maintains further that an error of such degree would not affect the practical usefulness of his method. The latter assumption we believe to be untenable, for all available data show that importance attaches precisely to the slighter reductions in brain weight, so far as the so-called functional insanities are concerned, the coarser reductions being observed mainly in connection with arrests of development and with organic brain lesions."

The brain was in all cases weighed in the fresh state at the time of autopsy, after allowing the cerebro-spinal fluid to drain away, but without stripping off the pia-arachnoid.

The proper measure of the relationship which exists under various conditions between cranial capacity and brain weight has hitherto received but little attention. It would seem clear that neither the difference nor the simple ratio which have been employed almost exclusively by those who have occupied themselves with the subject (Welcker,³

Bischoff,⁴ Manouvrier,⁵ Reichardt²), expresses most conveniently the relationship, as both will obviously vary widely under perfectly normal conditions, owing to the great variations in the sizes of skulls and brains. It would seem that what is required is a measure, not of the total space occupied by dura, cerebro-spinal fluid, etc., but of the average width of that space: not a cubic measure but a linear one; this is the measure which may be expected to furnish the most nearly constant relationship existing normally between cranial capacity and brain volume, and it alone can serve as an index of atrophy in pathological cases. Whether the method of calculation that is adopted furnishes an actual measure of the average width of the cranio-encephalic space or some other figure bearing a constant ratio to it is, of course, immaterial. In the present work, accordingly, the index of atrophy has been calculated in every case on the basis of the following formula:

$$\text{Index of atrophy} = \sqrt[3]{\text{cranial capacity}} - \frac{\sqrt[3]{\text{brain weight}}}{1.037}$$

As shown in the formula, the brain volume is derived from the brain weight by dividing the latter by 1.037, the average normal specific gravity of the brain.

This formula, it will be seen, simply gives double the width of the space around a cube equivalent to the brain volume enclosed in a cube equivalent to the cranial capacity. The ratio of this measure to the actual average width of the cranio-encephalic space will, of course, not be absolutely constant, but will vary somewhat as the shape of the brain varies, and it would be difficult to estimate the exact extent of such variation. However, the practical utility of this measure and its advantage over the difference or simple ratio seem to be amply attested by the results, as will appear further on.

II. THE MATERIAL.

The material consists of the following clinical and anatomical data collected from the records of 452 cases: age at time of death, clinical classification, duration of psychosis,

degree of mental deterioration, height and weight (measured at autopsy), cranial capacity, brain weight, and index of atrophy.

Three hundred and sixty-seven cases are from the Kings Park State Hospital, Kings Park, N. Y.; 75 from the Worcester State Hospital, Worcester, Mass.; and 10 from the Westborough State Hospital, Westborough, Mass.

The clinical diagnoses of all cases occurring upon a basis of coarse brain lesions were, of course, confirmed by the autopsy findings. The clinical records of other cases were carefully gone over and whenever the evidence in support of the diagnosis seemed incomplete or otherwise imperfect, the case was placed either in one of the "allied" groups or in the unclassified group.

The duration of the psychosis is in many cases unascertained; in some cases, however, the length of hospital residence affords some useful idea of it and is therefore given for want of more precise information; thus wherever in the table of data the duration is given as "over..... years" the number indicates the years of hospital residence.

The degree of mental deterioration is expressed in terms of an arbitrary scale in which A=no demonstrable deterioration; B=slight, though distinct, deterioration with preservation of the ability to take part in an ordinary conversation and to assist in such work as sewing or mending, basket weaving, house cleaning, going on errands, etc.; C=pronounced deterioration, there being, however, still some ability to respond intelligibly to simple questions or to do under supervision such labor as pushing a floor polisher, running a wheelbarrow, etc.; and D=complete deterioration with loss of ability to answer the simplest questions or to engage in the simplest kinds of labor, such loss of ability not being dependent on physical infirmity. Intermediate degrees of deterioration are expressed by combinations of symbols: A-B, B-C, C-D.

Temporary disability due to acute psychotic manifestations was not counted as evidence of deterioration, but only lasting and fairly uniform disability, and wherever any doubt entered as to the proper grouping of a case the de-

gree of deterioration was put down as unascertained. Yet clinicians will realize that, in spite of caution, error of judgment on this point is at times difficult to avoid. In some cases, for instance, in which the clinical records contain no evidences of deterioration, a slight degree of deterioration could perhaps be established were a better knowledge had of the patient's former mental level; in other cases, with a record of an irresponsive, inactive existence for five, ten, or even more years the deterioration, as all know, may be but apparent and not real or, at least, not so pronounced as it seems to be. In collecting the data pertaining to this point the hope was that crude errors would not be made too often and that the cases in which an approximately correct judgment might be arrived at would so far outweigh the others in number as to preserve largely the value of the data for the purpose in view.

The work of calculating the index of atrophy was greatly simplified and reduced by the use of Barlow's Tables.⁶

The entire mass of material is presented in Table 2, in which the cases are arranged in clinical groups and by sexes.

TABLE 2. THE MATERIAL.

Case No.	Age	Height in cms.	Weight in kgs.	Duration of psychosis	Degree of deterioration	Cranial capacity	Brain weight	Index of atrophy
CEREBRAL ARTERIOSCLEROSIS (Males).								
291	77	158	45.6	3 yrs.	C	1615	1340	0.841
317	78	172	83.5	3 yrs.	C	1874	1385	1.315
368	71	160	39.5	.....	B-C	1592	1313	0.859
396	63	167	49.9	6 yrs.	C-D	1545	1235	0.961
404	65	167	50.4	6 yrs.	C-D	1847	1432	1.133
423	73	.....	.....	.....	C-D	1450	1000	1.440
437	64	159	32.2	.....	C	1739	1279	1.302
506	73	163	37.2	12 yrs.	C	1486	1140	1.092
526	75	170	42.2	.....	C-D	1509	1035	1.510
648	63	167	41.7	.....	C	1595	1430	0.553
Wcr. 13—1	57	180	77.1	1 yr.	....	1660	1240	1.270
Wcr. 13—15	72	.....	.....	.....	D	1580	1330	1.006
Wcr. XVII—61	68	.....	.....	26 yrs.	B-C	1710	1360	1.014
Wtb. 407	78	157	.....	15 yrs.	C	1567	1247	0.980
CEREBRAL ARTERIOSCLEROSIS (FEMALES).								
305	..	152	64.0	.....	C	1199	996	0.759
393	51	161	33.6	6 yrs.	C	1292	1127	0.610
480	61	154	34.0	.....	C	1383	1097	0.952
603	..	155	27.9	.....	C	1464	1207	0.836
Wcr. XVII—38	61	152	.....	.....	C-D	1370	1215	0.651
Wcr. XVII—46	67	155	.....	1 yr.	D	1500	1015	1.518
Wcr. XVII—76	69	155	.....	.....	B-C	1500	985	1.617
BRAIN TUMOR (Males).								
600	41	160	45.1	3 yrs.	C-D	1569	1495	0.322
Wcr. XVII—21	49	166	55.8	15 yrs.	B	1630	1560	0.311
Wtb. 453	48	168	.....	1 yr.	C-D	1700	1559	0.480
BRAIN TUMOR (Female).								
531	46	155	55.3	4 yrs.	B	1624	1480	0.496
INFANTILE CEREBRAL PARALYSIS (Male).								
322	78	164	54.9	Congenital	A	1553	1252	0.933
TRAUMATIC DEMENTIA (Males).								
313	51	167	42.2	.....	C	1594	1245	1.052
427	..	177	63.5	.....	C-D	1735	1484	0.747

TABLE 2—(Continued).

Case No.	Age	Height in cms.	Weight in kgms.	Duration of psychosis	Degree of deterioration	Cranial capacity	Brain weight	Index of atrophy
CEREBRAL SYPHILIS (Female).								
491	58	165	80.3	3 mos.	....	1337	1189	0.549
GENERAL PARESIS (Males).								
265	40	160	45.4	2 yrs.	C-D	1552	1352	0.653
268	60	157	50.4	1 yr.	C-D	1515	1204	0.975
269	..	161	65.3	.....	....	1571	1352	0.700
284	56	180	72.6	8 mos.	C-D	1543	1335	0.678
286	58	160	71.2	1 yr.	B	1583	1390	0.630
296	45	164	56.7	1 yr.	C-D	1574	1360	0.688
304	35	170	65.3	2 yrs.	C-D	1572	1300	0.844
306	51	152	66.2	.....	C-D	1491	1220	0.869
308	35	151	54.9	3 yrs.	C	1426	1150	0.905
309	30	176	76.2	3 yrs.	C	1607	1220	1.158
329	..	163	53.5	.....	....	1603	1410	0.624
353	40	167	31.8	3 yrs.	C	1692	1370	0.944
355	59	159	36.7	.....	B-C	1620	1298	0.967
363	47	172	46.5	3 yrs.	C	1544	1330	0.692
366	43	160	34.0	1 yr.	C	1533	1302	0.741
367	38	160	64.9	1 yr.	C	1663	1301	1.061
372	47	160	43.8	2 yrs.	C	1576	1369	0.668
373	30	164	80.8	.....	C	1565	1332	0.741
406	37	161	40.4	.....	....	1641	1352	0.870
411	51	168	42.2	5 yrs.	C-D	1514	1242	0.862
417	47	165	46.3	2 yrs.	C	1523	1209	0.980
418	57	168	46.3	3 yrs.	B	1396	1189	0.708
421	..	162	38.6	.....	C	1690	1372	0.993
425	55	178	58.5	.....	B-C	1448	1270	0.613
426	55	168	34.9	6 yrs.	D	1229	905	1.154
428	41	164	57.1	.....	C-D	1514	1217	0.933
438	60	170	47.2	2 yrs.	C	1812	1490	0.907
445	37	167	47.2	.....	B-C	1447	1130	1.019
449	52	168	43.6	1 yr.	C	1397	1265	0.494
452	35	162	37.2	.....	C	1403	1200	0.697
453	34	160	37.2	2 yrs.	C-D	1298	1062	0.829
460	42	169	38.6	.....	C	1522	1244	0.876
467	43	168	47.1	3 yrs.	B-C	1590	1320	0.834
473	42	170	44.5	.....	B-C	1359	1271	0.374
482	34	165	38.1	.....	D	1604	1208	1.184
484	46	172	57.2	.....	C	1726	1498	0.690
488	53	168	45.8	2 yrs.	D	1746	1325	1.190
504	52	160	51.3	.....	B-C	1590	1345	0.766
509	32	165	44.5	.....	C	1569	1225	1.050
512	41	167	46.7	6 mos.	B-C	1480	1327	0.538
518	52	168	59.0	.....	C	1575	1260	0.964
522	60	156	37.2	.....	C	1551	1270	0.876

TABLE 2—(Continued).

General Paresis (Males).

Case No.	Age	Height in cms.	Weight in kgrms.	Duration of psychosis	Degree of deterioration	Cranial capacity	Brain weight	Index of atrophy
528	26	166	40.4	.....	....	1786	1465	0.911
533	53	166	40.4	.....	C-D	1403	1165	0.801
544	35	166	38.1	6 yrs.	D	1582	1282	0.920
550	28	164	51.7	2 yrs.	C-D	1605	1340	0.822
552	36	164	36.1	2 yrs.	C-D	1434	1240	0.668
558	45	167	49.4	.....	C	1348	1190	0.582
559	37	169	68.5	5 yrs.	B-C	1743	1530	0.657
574	48	167	55.8	3 yrs.	C	1665	1400	0.806
583	50	174	44.5	2 yrs.	D	1652	1190	1.357
586	45	168	44.5	6 mos.	C	1724	1470	0.761
590	38	170	42.6	3 yrs.	C-D	1369	1005	1.212
606	22	171	53.5	.....	....	1594	1472	0.444
614	43	155	30.8	6 yrs.	C-D	1653	1280	1.098
617	54	172	49.9	1 yr.	C-D	1639	1470	0.556
621	42	176	44.0	.....	B-C	1538	1245	0.913
628	63	166	48.1	.....	C	1606	1395	0.672
637	44	170	40.4	.....	C	1500	1360	0.502
638	57	178	48.5	3 yrs.	C	1493	1220	0.874
650	39	167	38.6	.....	B-C	1571	1274	0.913
652	42	170	36.7	.....	C-D	1610	1270	1.021
Wcr. 13— 5	52	166	66.2	3 yrs.	C-D	1705	1490	0.662
Wcr. 13—13	42	....	....	.....	C	1330	1180	0.557
Wcr. XVII— 8	38	160	....	2 yrs.	C-D	1770	1640	0.447
Wcr. XVII— 9	35	....	....	.....	D	1560	1305	0.803
Wcr. XVII—11	58	168	64.4	1 yr.	D	1780	1475	0.874
Wcr. XVII—12	48	166	....	.....	....	1690	1155	1.545
Wcr. XVII—19	40	170	43.6	6 yrs.	D	1470	1010	1.483
Wcr. XVII—22	34	175	56.0	2 yrs.	C-D	1380	1000	1.255
Wcr. XVII—24	34	178	....	.....	D	1570	1130	1.331
Wcr. XVII—27	42	170	52.6	2 yrs.	C	1520	1300	0.714
Wcr. XVII—35	52	....	....	2 yrs.	C-D	1540	1100	1.349
Wcr. XVII—50	44	....	....	.....	A-B	1410	1295	0.444
Wcr. XVII—58	53	....	....	3 yrs.	D	1700	1230	1.450
Wcr. XVII—64	32	165	51.3	.....	B-C	1540	1340	0.657

GENERAL PARESIS (Females).

266	39	149	47.6	.....	C-D	1353	984	1.233
271	55	162	58.1	2 yrs.	C	1650	1336	0.936
382	53	160	35.8	.....	....	1319	1081	0.829
385	48	....	....	1 yr.	C-D	1150	885	0.993
408	60	166	35.4	2 yrs.	C-D	1346	1100	0.842
409	40	161	22.2	5 yrs.	D	1287	980	1.064
419	47	158	32.7	6 yrs.	C-D	1391	1100	0.964
429	41	....	....	3 yrs.	B-C	1267	1142	0.495
495	42	153	48.5	1 yr.	B-C	1260	1098	0.608
496	34	141	23.6	1 yr.	B-C	1379	1180	0.690
513	37	161	37.2	.....	C-D	1374	1109	0.892

TABLE 2.—Continued.
General Pareis (Females).

Case No.	Age	Height in cms.	Weight in kgms.	Duration of psychosis	Degree of deterioration	Cranial capacity	Brain weight	Index of atrophy
568	35	163	42.2	2 yrs.	....	1339	1070	0.923
601	48	147	37.8	2 yrs.	D	1384	1135	0.840
613	32	158	22.7	3 yrs.	D	1555	1175	1.160
629	47	160	35.8	5 yrs.	D	1307	1155	0.567
639	34	168	50.8	.....	C-D	1512	1270	0.778
653	57	157	32.7	4 yrs.	C-D	1341	1210	0.499
Wcr. 13—2	45	171	....	.....	C-D	1490	1245	0.792
Wcr. XVII—42	45	164	....	3 yrs.	D	1285	925	1.246
Wcr. XVII—62	52	178	3 yrs.	D	1395	1035	1.108

“ALZHEIMER'S DISEASE” (Female).

Wtb. 398	56	156	1 yr.	D	1270	1127	0.569
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SENILE DEMENTIA (Males).

283	71	170	72.6	C-D	1587	1368	0.697
292	78	152	50.8	B-C	1455	1172	0.916
333	..	150	37.5	.....	....	1346	1120	0.781
346	62	170	49.9	.....	C	1618	1375	0.754
371	75	170	41.7	.....	C-D	1735	1523	0.648
380	69	171	48.5	2 yrs.	C	1729	1420	0.899
414	75	162	56.3	2 yrs.	C	1478	1135	1.087
507	73	166	43.6	.....	....	1406	1077	1.075
537	..	162	31.8	.....	C-D	1640	1345	0.887
593	80	165	50.3	.....	C-D	1630	1210	1.246
Wcr. 13—4	83	161	56.7	5 yrs.	C-D	1665	1285	1.112
Wcr. 13—6	61	166	39.5	6 mos.	C-D	1610	1440	0.563
Wcr. XVII—26	83	150	48.1	.....	C	1460	1215	0.801
Wcr. XVII—34	68	....	....	1 yr.	D	1630	1385	0.755
Wcr. XVII—53	74	165	54.4	6 mos.	C-D	1500	1240	0.832
Wcr. XVII—55	75	....	....	6 mos.	C	1875	1350	1.412
Wcr. XVII—67	70	163	41.7	.....	C-D	1530	1290	0.768

SENILE DEMENTIA (Females).

279	90	136	39.5	6 yrs.	C-D	1359	1010	1.164
285	80	160	49.9	3 yrs.	C	1400	1070	1.081
351	88	151	41.7	.....	C	1344	1130	0.744
374	76	150	41.7	4 yrs.	C	1240	995	0.882
461	71	167	46.3	4 yrs.	C	1520	1265	0.812
560	66	165	33.8	.....	C-D	1565	1360	0.668
562	72	153	31.1	.....	C	1627	1190	1.297
564	76	143	38.6	3 yrs.	C	1310	1015	1.019
572	81	133	19.5	3 yrs.	C	1145	845	1.125
609	66	150	24.5	5 yrs.	B-C	1303	1100	0.723
620	69	160	30.4	5 yrs.	D	1253	860	1.387

TABLE 2—(Continued).

Senile Dementia (Females).

Case No.	Age	Height in cms.	Weight in kgs.	Duration of psychosis	Degree of deterioration	Cranial capacity	Brain weight	Index of atrophy
635	84	157	47.2	5 yrs.	C	1376	995	1.261
645	78	....	29.0	5 yrs.	C-D	1355	920	1.458
Wcr. XVII—20	86	....	....	.....	C	1250	1000	0.894
Wcr. XVII—52	75	140	....	5 yrs.	C	1485	1030	1.432
Wcr. XVII—60	66	163	....	4 yrs.	D	1480	1035	1.403
Wcr. XVII—63	69	145	....	3 yrs.	C-D	1230	885	1.231
Wcr. XVII—69	80	....	....	2 yrs.	C-D	1310	995	1.080
Wcr. XVII—71	88	....	....	1 yr.	C-D	1645	1200	1.307

ALCOHOLIC PSYCHOSIS, KORSAKOFF'S (Males).

278	62	172	64.4	2 yrs.	B-C	1670	1439	0.709
376	..	170	53.1	.....	C	1492	1225	1.057
455	65	166	47.6	19 yrs.	B-C	1552	1260	0.917
541	..	172	67.6	.....	C-D	1796	1370	1.183
632	59	159	42.6	5 yrs.	C	1403	1135	0.891

ALCOHOLIC PSYCHOSIS, KORSAKOFF'S (Females).

347	40	144	34.0	4 yrs.	B-C	1396	1245	0.547
493	64	154	46.7	5 yrs.	B-C	1473	1160	0.996

ALCOHOLIC PSYCHOSIS, CONFUSED DEPRESSION (Male).

Wtb. 405	59	168	3 yrs.	A-B	1620	1588	0.219
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ALCOHOLIC PSYCHOSIS, ACUTE DELUSIONAL STATE (Female).

Wcr. XVII—13	67	158	1 yr.	A	1280	1140	0.538
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HUNTINGTON'S CHOREA (Male).

622	49	163	36.3	12 yrs.	C-D	1375	980	1.307
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HUNTINGTON'S CHOREA (Females).

369	44	159	34.5	7 yrs.	B	1359	1050	1.033
435	46	152	29.0	6 yrs.	D	1493	1225	0.859
462	44	157	21.8	9 yrs.	....	1443	1260	0.630
Wcr. 13—11	44	156	....	20 yrs.	D	1475	1120	1.123

IMBECILITY WITH INSANITY (Males).

323	27	168	55.3	Congenital	....	1671	1510	0.532
Wcr. XVII—30	81	....	....	Congenital	A-B	1260	1010	0.888

TABLE 2—(Continued).

Case No.	Age	Height in cms.	Weight in kgrms.	Duration of psychosis	Degree of deterioration	Cranial capacity	Brain weight	Index of atrophy
EPILEPTIC PSYCHOSES (Males).								
295	47	160	62.1	21 yrs.	B-C	1507	1360	0.520
326	30	172	59.0	.....	....	1570	1395	0.584
498	42	162	....	15 yrs.	A-B	1720	1480	0.723
534	18	171	67.1	2 yrs.	A-B	1451	1285	0.581
535	43	170	69.0	15 yrs.	B	1827	1625	0.610
557	22	163	68.5	.....	....	1561	1405	0.540
EPILEPTIC PSYCHOSES (Females).								
267	65	146	40.4	.....	A-B	1200	1134	0.323
312	47	160	64.4	.....	A-B	1329	1263	0.315
378	58	154	25.4	.....	D	1582	1235	1.052
384	33	157	37.4	7 yrs.	....	1375	1290	0.365
530	56	160	32.0	28 yrs.	B	1324	1160	0.599
567	40	166	55.6	27 yrs.	B	1473	1155	1.018
576	35	149	21.8	22 yrs.	D	1378	1195	0.648
592	34	155	46.7	25 yrs.	C-D	1193	1035	0.616
596	49	146	48.5	42 yrs.	B	1353	1170	0.654
Wcr. 13—7	69	158	....	44 yrs.	....	1450	1250	0.677
SENILE PARANOID STATES (Males).								
325	79	168	59.9	15 yrs.	B	1579	1150	1.294
595	75	160	54.9	16 yrs.	B	1574	1240	1.024
Wcr. XVII—31	75	175	60.8	1 yr.	A-B	1575	1270	0.935
Wcr. XVII—47	83	172	56.3	1 yr.	A-B	1520	1265	0.812
SENILE PARANOID STATES (Females).								
310	80	143	50.4	8 yrs.	A-B	1369	1180	0.663
329	..	161	81.2	.....	A-B	1375	1235	0.520
465	67	....	....	3 yrs.	A-B	1238	1080	0.603
503	74	148	36.3	2 yrs.	B	1280	1018	0.918
DEMENTIA PRÆCOX (Males).								
272	51	160	51.3	Over 34 yrs.	D	1355	1141	0.743
289	28	175	60.8	9 yrs.	B-C	1781	1620	0.519
321	70	164	50.8	Over 45 yrs.	B-C	1728	1375	1.014
328	50	168	67.1	Over 13 yrs.	C	1621	1460	0.539
330	64	159	55.3	Over 34 yrs.	B	1496	1225	0.867
332	45	161	54.0	18 yrs.	B	1400	1220	0.632
334	61	160	53.3	Over 10 yrs.	B-C	1473	1297	0.603
377	53	171	52.3	24 yrs.	C-D	1816	1565	0.730

TABLE 2—(Continued).

Dementia Præcox (Males).

Case No.	Age	Height in cms.	Weight in kgrms.	Duration of psychosis	Degree of deterioration	Cranial capacity	Brain weight	Index of atrophy
379	62	157	41.3	23 yrs.	B-C	1545	1372	0.583
420	68	162	33.6	27 yrs.	B-C	1541	1235	0.951
434	68	164	69.0	Over 19 yrs.	B-C	1519	1351	0.573
443	66	168	38.1	Over 13 yrs.	B-C	1465	1313	0.539
456	21	163	25.9	.....	C-D	1741	1450	0.848
475	35	178	52.6	.....	A-B	1850	1550	0.842
489	66	162	39.0	37 yrs.	B-C	1573	1421	0.528
520	69	168	51.7	Over 34 yrs.	C	1567	1388	0.596
539	71	....	....	Over 41 yrs.	C	1789	1425	1.022
547	37	163	61.2	2 yrs.	A-B	1531	1350	0.606
554	57	171	64.4	Over 11 yrs.	C	1649	1430	0.689
555	23	172	42.6	5 yrs.	C	1530	1360	0.581
561	45	167	45.8	18 yrs.	B-C	1628	1465	0.540
573	32	168	53.5	5 yrs.	B-C	1468	1340	0.476
579	27	160	29.0	6 yrs.	C-D	1546	1290	0.814
581	32	180	63.1	12 yrs.	C	1561	1455	0.411
605	18	172	34.9	3 yrs.	C	1569	1385	0.606
608	52	161	41.3	.....	C	1694	1630	0.293
611	51	170	55.8	Over 25 yrs.	B-C	1588	1235	1.067
616	67	170	76.2	21 yrs.	B	1617	1510	0.403
646	56	162	51.7	33 yrs.	C	1512	1355	0.544
Wcr. 13—10	45	177	69.9	10 yrs.	B	1510	1400	0.420
Wcr. XVII—16	60	170	60.0	15 yrs.	C	1460	1175	0.919
Wcr. XVII—41	75	....	....	45 yrs.	B-C	1645	1405	0.739
Wcr. XVII—57	29	180	59.4	4 yrs.	C	1580	1350	0.728
Wtb. 383	20	164	....	3 yrs.	B	1430	1403	0.206

DEMENTIA PRÆCOX (Females).

264	61	160	52.2	Over 10 yrs.	B-C	1276	1107	0.628
274	68	161	51.7	Over 24 yrs.	B-C	1344	1192	0.562
280	61	....	....	12 yrs.	C	1439	1265	0.605
282	75	140	54.4	25 yrs.	D	1397	1140	0.859
290	40	155	46.3	.....	C	1570	1362	0.672
294	61	150	54.4	Over 41 yrs.	D	1344	1140	0.716
316	86	163	51.3	Over 45 yrs.	C-D	1360	1215	0.536
318	73	161	42.6	Over 24 yrs.	C	1228	1154	0.345
319	33	159	32.7	11 yrs.	C	1364	1283	0.355
336	72	156	43.2	Over 22 yrs.	B-C	1309	1155	0.573
338	38	156	29.7	10 yrs.	C-D	1389	1185	0.702
342	20	160	40.1	3 yrs.	B-C	1346	1248	0.406
344	53	150	38.1	27 yrs.	C	1500	1300	0.663
345	39	160	41.7	13 yrs.	C	1320	1120	0.710
362	27	160	23.6	10 yrs.	C	1444	1265	0.618
364	79	148	35.8	38 yrs.	B-C	1228	1080	0.574
370	65	148	42.4	22 yrs.	B-C	1357	1215	0.528
375	73	150	24.0	30 yrs.	C	1215	1000	0.792
386	57	146	38.1	30 yrs.	C-D	1438	1102	1.081

TABLE 2—(Continued).
Dementia Præcox (Females).

Case No.	Age	Height in cms.	Weight in kgms.	Duration of psychosis	Degree of deterioration	Cranial capacity	Brain weight	Index of atrophy
387	76	157	28.1	Over 29 yrs.	C-D	1358	1132	0.776
389	68	157	32.2	Over 27 yrs.	B-C	1380	1133	0.833
392	27	160	22.2	5 yrs.	....	1208	1120	0.390
410	60	147	44.5	31 yrs.	D	1376	1207	0.603
424	44	150	27.2	19 yrs.	D	1329	1045	0.968
433	57	146	64.9	Over 27 yrs.	B	1335	1057	0.948
436	33	166	65.3	2 yrs.	A-B	1449	1310	0.507
444	60	152	43.1	13 yrs.	B-C	1403	1268	0.501
448	60	145	34.5	32 yrs.	B-C	1301	1120	0.657
463	51	155	34.0	23 yrs.	D	1336	1230	0.429
478	44	165	25.0	12 yrs.	C	1453	1300	0.543
486	51	159	37.2	8 yrs.	B-C	1403	1298	0.408
499	50	164	34.0	14 yrs.	B-C	1325	1115	0.739
501	80	159	29.9	Over 47 yrs.	D	1297	948	1.201
502	62	150	25.4	13 yrs.	....	1146	1000	0.586
511	51	150	25.9	Over 25 yrs.	C-D	1324	1115	0.737
515	69	150	29.9	Over 37 yrs.	C	1272	1075	0.713
516	73	165	70.3	19 yrs.	A-B	1207	1120	0.387
523	33	165	40.4	2 yrs.	C-D	1182	1090	0.406
543	53	165	70.3	15 yrs.	C	1453	1255	0.670
549	52	143	37.6	22 yrs.	B-C	1603	1290	0.954
553	59	161	31.1	31 yrs.	B-C	1193	1075	0.491
556	27	155	43.1	11 yrs.	C	1381	1235	0.542
571	40	160	29.5	7 yrs.	C-D	1608	1440	0.563
585	68	160	26.3	48 yrs.	B-C	1499	1290	0.695
602	60	150	31.3	21 yrs.	C	1486	1335	0.534
604	59	150	29.9	29 yrs.	C	1318	1005	1.068
610	54	150	25.9	22 yrs.	C-D	1625	1360	0.812
615	64	160	49.9	Over 20 yrs.	C	1473	1030	1.401
624	78	149	24.5	Over 39 yrs.	C	1397	1160	0.797
Wcr. 13—3	45	169	....	4 yrs.	B	1285	1225	0.302
Wcr. XVII—29	50	166	....	13 yrs.	C-D	1405	1290	0.445
Wcr. XVII—39	52	160	....	8 yrs.	C-D	1319	1140	0.647
Wtb. 403	45	153	....	9 yrs.	C	1555	1418	0.490

PSYCHOSES ALLIED TO DEMENTIA PRÆCOX (Males).

311	62	160	59.0	10 yrs.	A-B	1484	1370	0.434
324	63	160	56.7	43 yrs.	A-B	1559	1362	0.645
337	65	160	57.2	Over 31 yrs.	A-B	1733	1560	0.554
394	43	178	71.7	3 yrs.	B	1788	1622	0.530
440	70	165	93.0	17 yrs.	B	1656	1352	0.906
450	44	154	45.4	Over 24 yrs.	C	1502	1303	0.663
459	68	....	....	Over 16 yrs.	B	1748	1522	0.681
470	25	170	37.2	.....	....	1622	1360	0.805
490	48	162	55.8	22 yrs.	A-B	1577	1390	0.615
525	50	161	33.1	.....	....	1453	1145	0.991
529	46	....	....	20 yrs.	B-C	1697	1458	0.725
587	58	160	41.3	30 yrs.	B-C	1503	1210	0.933
Wcr. XVII—14	63	163	61.2	4 yrs.	C	1620	1300	0.961
Wcr. XVII—74	62	176	54.9	52 yrs.	A-B	1480	1245	0.767

TABLE 2— Continued).

Case No.	Age	Height in cms.	Weight in kgs.	Duration of psychosis	Degree of deterioration	Cranial capacity	Brain weight	Index of atrophy
PSYCHOSES ALLIED TO DEMENTIA PRÆCOX (Females).								
315	78	141	42.6	Over 39 yrs.	C	1324	1063	0.898
335	82	155	60.8	Over 21 yrs.	B-C	1458	1200	0.841
341	35	163	35.4	8 yrs.	B-C	1273	1155	0.471
349	71	140	35.8	Over 30 yrs.	C	1334	1068	0.909
356	58	156	46.3	31 yrs.	A-B	1377	1239	0.513
361	26	143	20.0	6 yrs.	C	1368	1151	0.747
383	79	152	65.3	Over 24 yrs.	C	1290	1050	0.843
395	41	154	37.2	.....	....	1436	1270	0.582
399	68	150	35.8	Over 24 yrs.	A-B	1210	958	0.916
415	81	160	42.6	58 yrs.	C-D	1273	1057	0.775
422	26	168	31.9	7 yrs.	B-C	1402	1254	0.539
430	..	162	49.4	Over 22 yrs.	C	1375	1045	1.093
432	22	140	20.0	.....	....	1136	1032	0.451
439	55	144	35.4	Over 5 yrs.	A-B	1350	1155	0.686
441	21	150	30.8	.....	....	1363	1162	0.699
468	56	167	39.0	Over 26 yrs.	B	1193	1081	0.468
483	50	150	26.3	10 yrs.	....	1283	1155	0.500
487	45	162	54.9	9 mos.	A	1355	1285	0.325
517	46	146	37.2	2 yrs.	B	1274	1147	0.499
565	54	152	47.2	7 yrs.	B	1544	1305	0.766
566	30	144	27.2	1 yr.	....	1125	985	0.573
578	45	164	37.6	2 yrs.	B	1358	1225	0.507
598	38	160	71.7	8 mos.	A-B	1172	1030	0.570
626	77	147	48.5	Over 27 yrs.	B-C	1413	1170	0.812
627	81	154	44.9	Over 16 yrs.	C-D	1521	1190	1.029
636	73	153	60.3	23 yrs.	B	1346	1145	0.706
643	79	156	27.2	Over 36 yrs.	C	1284	1070	0.763
Wcr. 13— 8	80	155	....	19 yrs.	....	1375	1050	1.077
Wcr. XVII—17	34	168	60.1	6 yrs.	B-C	1320	1200	0.472
Wcr. XVII—25	59	....	....	15 yrs.	B	1190	1140	0.277
Wcr. XVII—43	34	161	....	1 yr.	A-B	1460	1255	0.688
Wtb. 452	64	160	....	Over 25 yrs.	A-B	1595	1446	0.513

MANIC-DEPRESSIVE PSYCHOSES (Males).

273	48	163	50.8	1 yr.	A	1647	1517	0.457
277	57	171	52.8	1 yr.	A	1613	1440	0.570
307	56	171	92.5	9 mos.	A	1649	1500	0.506
381	44	160	38.1	3 mos.	A	1487	1327	0.556
575	61	143	59.4	6 mos.	A	1580	1385	0.639

TABLE 2—(Continued).

Case No.	Age	Height in cms.	Weight in kgms.	Duration of psychosis	Degree of deterioration	Cranial capacity	Brain weight	Index of atrophy
MANIC-DEPRESSIVE PSYCHOSES (Females).								
275	29	149	58.1	1½ yrs.	A	1451	1317	0.492
331	59	144	61.7	3½ yrs.	A	1375	1294	0.353
350	32	154	53.5	5 mos.	A	1392	1340	0.274
471	64	150	24.0	5 yrs.	A-B	1278	1140	0.532
481	34	....	....	Over 6 yrs.	A-B	1451	1290	0.566
542	54	149	62.1	8 yrs.	A-B	1274	1070	0.735
Wcr. 13—12	75	....	....	13 yrs.	A	1325	1085	0.832
Wcr. XVII—59	70	160	....	10 yrs.	A	1360	1145	0.744
Wcr. XVII—65	54	169	39.9	4 mos.	A	1205	1010	0.729
Wtb. 408	69	150	....	2 yrs.	A-B	1235	1148	0.384

PSYCHOSES ALLIED TO MANIC-DEPRESSIVE (Males).

358	29	173	74.4	3 wks.	A	1638	1542	0.374
400	38	162	56.7	6 yrs.	A-B	1402	1300	0.409
405	51	162	36.7	3 yrs.	A-B	1459	1208	0.820
532	54	168	76.2	1 wk.	....	1468	1272	0.659
631	82	155	42.6	4 mos.	A	1595	1172	1.141
642	68	162	64.0	47 yrs.	B	1446	1275	0.597
Wtb. 390	68	159	....	2 yrs.	A-B	1710	1460	0.750

PSYCHOSES ALLIED TO MANIC-DEPRESSIVE (Females).

314	69	143	60.8	Over 15 yrs.	B	1459	1344	0.439
354	74	157	50.4	4 mos.	A-B	1191	972	0.815
390	45	176	57.2	3 wks.	A	1291	1142	0.563
407	46	166	25.4	2 yrs.	B	1477	1352	0.386
413	71	159	23.6	6 mos.	A	1436	1095	1.099
451	55	150	29.9	Over 13 yrs.	A-B	1113	1009	0.454
521	39	155	38.6	Over 15 yrs.	A-B	1270	1105	0.614
538	71	156	39.5	Over 2 yrs.	A-B	1528	1200	1.020
582	93	165	38.1	10 yrs.	B	1246	1050	0.724
591	33	159	39.7	8 mos.	A-B	1278	1150	0.507
594	42	146	45.8	9 mos.	....	1272	1125	0.566
607	25	162	46.3	Sev'l wks.	A-B	1274	1220	0.285
619	43	154	28.1	.....	A-B	1318	1050	0.921
633	49	156	54.0	1 yr.	A	1407	1295	0.436
640	55	157	44.0	33 yrs.	A-B	1456	1400	0.282
Wcr. XVII—49	41	164	50.4	5 yrs.	A-B	1395	1270	0.474
Wcr. XVII—72	61	168	14 yrs.	A-B	1340	1120	0.765

INVOLUTION MELANCHOLIA (Female).

Wcr. XVII—68	50	3 yrs.	A-B	1375	1155	0.753
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TABLE 2—(Continued).

Case No.	Age	Height in cms.	Weight in kgs.	Duration of psychosis	Degree of deterioration	Cranial capacity	Brain weight	Index of atrophy
NEURASTHENIC CONDITION (Female).								
545	59	163	54.9	38 yrs.	A	1434	1250	0.635
CONSTITUTIONAL INFERIORITY, EXCITED EPISODES (Female).								
320	40	147	73.5	Congenital	A	1823	1722	0.373
UNCLASSIFIED PSYCHOSES (Males).								
281	..	168	59.0	.....	....	1687	1500	0.596
293	30	162	67.1	1 wk.	....	1700	1504	0.616
297	..	170	59.0	.....	B-C	1514	1255	0.827
340	72	170	47.2	9 yrs.	C	1416	1157	0.857
388	55	164	39.0	.....	C	1492	1272	0.721
403	58	171	42.2	7 yrs.	C	1422	1165	0.851
412	27	156	59.4	2 wks.	....	1392	1275	0.459
431	70	170	58.5	.....	C	1682	1474	0.650
447	43	164	39.9	.....	....	1878	1567	0.863
466	60	167	32.2	2 yrs.	C	1333	1051	0.962
476	48	183	49.0	.....	....	1774	1453	1.020
494	59	167	38.6	.....	B-C	1429	1165	0.869
505	53	171	67.6	6 mos.	A-B	1572	1390	0.603
514	45	152	35.8	10 yrs.	....	1314	1015	1.023
524	56	171	65.3	.....	B	1674	1480	0.885
536	64	160	41.7	3 yrs.	....	1351	1188	0.590
563	45	166	45.4	2 yrs.	B	1559	1395	0.562
580	65	168	39.5	1½ yrs.	....	1593	1385	0.671
589	55	164	37.6	.....	....	1530	1330	0.662
625	70	152	38.6	Over 13 yrs.	A-B	1317	1135	0.657
634	58	167	39.5	.....	C	1503	1175	1.030
Wcr. XVII—33	42	179	83.2	15 yrs.	A	1585	1375	0.673
Wcr. XVII—51	68	166	66.9	3 mos.	A-B	1610	1370	0.748
UNCLASSIFIED PSYCHOSES (Females).								
263	22	148	78.9	1 yr.	....	1220	1015	0.756
327	56	148	64.4	34 yrs.	A-B	1279	1180	0.415
352	80	151	32.7	6 yrs.	C	1402	1060	1.119
359	32	172	33.1	.....	....	1504	1268	0.763
365	69	150	24.5	.....	A-B	1390	1277	0.443
398	81	144	43.6	36 yrs.	....	1425	1075	1.131
401	74	154	48.5	4 yrs.	B-C	1497	1375	0.453
402	38	172	45.4	4 mos.	A	1382	1320	0.301
416	73	161	58.1	1 yr.	....	1398	1210	0.653
446	65	160	24.5	.....	C	1535	1380	0.535
472	47	163	34.9	1 yr.	....	1335	1105	0.796
477	80	159	27.0	5 yrs.	A-B	1279	1107	0.636

TABLE 2—(Continued).

Unclassified Psychoses (Females).

Case No.	Age	Height in cms.	Weight in kgms.	Duration of psychosis	Degree of deterioration	Cranial capacity	Brain weight	Index of atrophy
485	49	153	29.9	2 yrs.	....	1190	975	0.801
497	60	156	41.3	8 yrs.	C-D	1225	1022	0.747
510	50	157	34.0	1 yr.	C	1703	1403	0.884
527	..	155	48.5	.....	....	1544	1318	0.726
540	30	161	28.1	.....	....	1313	1149	0.602
546	78	142	23.1	.....	B-C	1435	1220	0.724
588	28	154	31.8	7 mos.	....	1492	1220	0.877
597	65	154	28.1	13 yrs.	....	1261	1145	0.472
599	63	166	34.9	4 yrs.	C-D	1513	1150	1.135
612	30	157	22.7	.....	....	1354	1255	0.407
647	53	160	44.5	5 mos.	....	1255	1055	0.730
649	47	158	44.9	Under 1 yr.	C	1306	1120	0.671
651	64	153	36.7	1 yr.	....	1330	1195	0.514
Wcr. XVII—32	41	160	....	6 mos.	....	1190	1005	0.701
Wcr. XVII—36	74	158	....	10 yrs.	C	1460	1055	1.285
Wcr. XVII—56	51	164	....	3 yrs.	B	1340	1105	0.837
Wcr. XVII—66	65	164	40.8	4 yrs.	A	1430	1200	0.768
Wcr. XVII—70	85	150	....	18 yrs.	C	1250	870	1.431

TABLE 2 (a)

Case No.	Age	Height in cms.	Weight in kgrms.	Duration of psychosis	Degree of deterioration	Cranial capacity	Brain weight	Index of atrophy	Psychosis	Complicating Brain Lesion
348	47	158	41.3	.....	A-B	1859	1475	1.051	Unclassified	Arteriosclerotic softening
397	51	165	39.0	1 yr.	....	1510	1215	0.929	Allied to manic-depressive	Tubercular meningitis
442	40	167	50.4	.....	....	1533	1260	0.876	Unclassified	Subdural hemorrhage
464	70	174	35.2	15 yrs.	C	1596	1280	1.264	Paranoic condition	Cerebral arteriosclerosis
479	49	168	74.8	2 yrs.	A	1634	1527	0.403	Manic-depressive	Cerebral hemorrhage
623	47	161	55.3	.....	....	1445	1255	0.649	Allied to dementia præcox	Arteriosclerotic softening
641	60	161	43.1	.....	C	1417	1135	0.928	Unclassified	Subdural hemorrhage
654	42	155	43.5	Over 20 yrs.	B-C	1609	1595	0.175	Dementia præcox	Cerebral hemorrhage
Wcr. XVII-10	74	..	....	.....	A	1400	1155	0.820	Manic-depressive	Hemorrhagic pachymeningitis
Wcr. XVII-18	73	..	....	3 yrs.	C-D	1780	1250	1.478	Senile dementia	Subdural hemorrhage
Wcr. XVII-48	63	178	66.2	1 yr.	A	1460	1175	0.919	Manic-depressive	Subdural hemorrhage
Wtb. 386	38	173	65.0	6 mos.	....	1432	1318	0.439	General paresis	Cerebral hemorrhage
288	69	145	49.9	Over 36 yrs.	B-C	1546	1210	1.035	Dementia præcox	Cerebral hemorrhage
357	68	159	35.4	Over 35 yrs.	D	1433	1130	0.963	Dementia præcox	Arteriosclerotic softening
474	54	142	43.6	18 yrs.	A-B	1673	1362	0.921	Allied to manic-depressive	Internal hydrocephalus
492	74	144	43.6	Over 37 yrs.	C	1193	1018	0.666	Dementia præcox	Arteriosclerotic softening
500	76	161	38.6	22 yrs.	B-C	1455	1094	1.151	Allied to manic-depressive	Cerebral arteriosclerosis
519	56	142	39.0	8 yrs.	A-B	1281	1132	0.563	Allied to manic-depressive	Acute meningitis
551	73	154	29.5	Over 40 yrs.	C-D	1309	1070	0.840	Dementia præcox	Arteriosclerotic softening
570	63	142	48.1	33 yrs.	C-D	1414	925	1.601	Dementia præcox	Arteriosclerotic softening
Wcr. XVII-23	..	152	....	.....	B	1310	1020	0.995	Allied to manic-depressive	Arteriosclerotic softening
Wcr. XVII-44	43	145	....	Congenital	....	1235	1065	0.702	Imbecility with insanity	Porencephaly

MALES

FEMALES

III. CORRELATIONS BETWEEN INDEX OF ATROPHY AND AGE AND STATE OF GENERAL NUTRITION.

The material of this study, as presented in Table 2, shows almost at a glance that the index of atrophy varies with the psychosis, with the degree of deterioration, and with the duration; before undertaking a more detailed investigation of these variations it may be advisable to consider what influence, if any, is due to age and to the state of general nutrition.

In order to avoid, as far as possible, the chance of attributing erroneously any atrophy directly resulting from nervous disease to senility or to emaciation, cases of coarse cerebral lesions have been excluded from consideration in this connection, as well as cases with mental deterioration to the degree B, or of more than five years' duration; cases in which either the degree of deterioration or the duration of the psychosis is unascertained have, of course, also been excluded.

The remaining cases have been divided into groups, first by ages, then by states of general nutrition, and the average index of atrophy has been calculated for each group. The results will be found in Tables 4 and 5.

The manner of classifying cases as regards the state of general nutrition was as follows: the cases in which the height and the weight are given have been separated into three groups characterized respectively by normal nutrition, moderate emaciation, and pronounced emaciation. As a standard of normality of body weights, Symond's tables⁷ have been used which are based on measurements of 74,162 male and 58,855 female accepted applicants for life insurance. According to Symond's tables the normal weight for any given height varies slightly with age; but for the present purpose the average for each height at all ages was taken and a simpler table thus constructed, the measures of the common system being at the same time converted into those of the metric system; the standard thus obtained is presented in Table 3. All cases presenting a body weight not more than 25 per cent below the standard for the corresponding height were classed as of normal nutrition; those

presenting a weight deficit of from 25 to 40 per cent were classed as of moderate emaciation; and those presenting a weight deficit of over 40 per cent were classed as of pronounced emaciation.

TABLE 3. BODY WEIGHT STANDARDS FOR VARIOUS HEIGHTS.

HEIGHT IN CENTIMETERS	WEIGHT IN KILOGRAMS	
	Men	Women
149.9	....	54.9
152.4	60.5	56.3
154.9	60.8	57.2
157.5	61.7	59.0
160.0	63.5	60.3
162.6	64.9	61.7
165.1	66.6	64.0
167.6	68.7	65.3
170.2	70.5	67.6
172.7	72.8	69.4
175.3	75.1	71.2
177.8	77.3	73.0
180.3	80.8	....
182.9	82.1	....
185.4	84.8	....
188.0	87.5	....
190.5	90.9	....

TABLE 4. CORRELATION BETWEEN INDEX OF ATROPHY AND AGE.

Under 40 years. 11	40-60 years. 15	Over 60 years. 14
0.471	0.516	0.753

TABLE 5. CORRELATION BETWEEN INDEX OF ATROPHY AND STATE OF GENERAL NUTRITION.

Normal Nutrition. 21	Moderate Emaciation. 5	Pronounced Emaciation. 6
0.524	0.643	0.629

The small figures give the number of cases in each group; the larger figures give the average index of atrophy.

The figures in Tables 4 and 5 are not offered as proof of existence of definite correlations between index of atrophy and senility and general emaciation, the number of cases being so small; but it is sufficiently evident that there is some likelihood of there being such correlations—a circumstance of which account must be taken in the study of brain atrophy in relation to insanity.

IV. CORRELATIONS BETWEEN INDEX OF ATROPHY AND NATURE OF PSYCHOSIS, DEGREE OF MENTAL DETERIORATION, AND DURATION.

As the first step in the examination of correlations that may exist between index of atrophy and clinical data the material has been separated into groups according to psychoses and further into sub-groups according to degrees of deterioration; the average index of atrophy has been calculated for each sub-group. The results are given in Table 6.

TABLE 6. CORRELATIONS BETWEEN INDEX OF ATROPHY AND PSYCHOSIS AND DEGREE OF MENTAL DETERIORATION.

CLINICAL GROUPS	DEGREE OF DETERIORATION			
	A or A-B	B or B-C	C or C-D	D
Cerebral Arteriosclerosis		3 1.160	15 0.996	2 1.262
General Paresis.....	1 0.444	15 0.715	55 0.836	16 1.113
Senile Dementia.....		2 0.819	29 1.005	3 1.182
Alcoholic Psychosis, Korsakoff's		4 0.792	3 1.044	
Huntington's Chorea.....		1 1.033	1 1.044	2 0.991
Epilepsy	4 0.484	5 0.680	1 0.616	2 0.850
Senile Paranoid States.....	5 0.707	3 1.079		
Dementia Præcox.....	4 0.568	32 0.612	41 0.672	8 0.798
Allied to Dementia Præcox.....	12 0.602	16 0.634	10 0.868	
Manic-Depressive Psychoses	15 0.558			
Allied to Manic-Depressive.....	18 0.652	4 0.537		

The small figures give the number of cases in each sub-group; the larger figures give the average index of atrophy.

On comparing the figures in the vertical columns it will be observed that cases presenting clinically any given degree of mental deterioration vary widely in respect to average index atrophy, according to the psychosis; the loss of substance, as indicated by this measure, appears to be greater in cerebral arteriosclerosis than in any other clinical group

represented in the table; it is greater in general paresis and in senile dementia than in dementia præcox.

These differences are perhaps to be ascribed to corresponding differences in the nature, extent, and rate of progress of the underlying pathological processes. While in one clinical group the process may affect alike all tissue elements, in another it may affect mainly—for a time perhaps solely—the parenchymatous elements; further, while in one group the process may be widespread, in another it may be so restricted in its distribution as to affect principally the regions which have most to do with mental functions; finally a rapid process will, naturally, bring about its full measure of atrophy sooner than a slow one.

Turning again to the tables and comparing the figures in the horizontal columns it will be seen that, barring the groups which are numerically too small to afford a judgment on this point, the data show with striking consistency that *mental deterioration of whatever nature goes hand in hand with brain atrophy*. That this should be true in respect to arteriosclerotic dementia, general paresis, and senile psychoses might indeed have been expected in the light of previous knowledge of these conditions; but the remarkable fact is that it appears to be equally true in respect to dementia præcox.

At the same time it is to be observed that the above rule, though it holds for averages, is subject to many exceptions in individual cases, as may be seen by referring to Table 2. How are these exceptions to be accounted for?

It may be taken for granted that whatever be the nature of the pathological process underlying mental deterioration in any clinical group, some length of time must elapse from the initial parenchymal affection to the final disappearance of the affected elements by absorption of their débris; and it may similarly be taken for granted that loss of function is dependent not on this final absorption of débris but on earlier stages of the process. It follows from this that to properly measure atrophy as a part of any process in correlation with clinical evidences of deterioration the factor of duration must be taken into account.

In order to do so for general paresis and dementia præcox, the numerically larger sub-groups represented in Table 6 have been further separated according to duration; some cases had to be eliminated owing to their duration being unascertained. The calculated averages are given in Table 7.

The figures in the table seem to show quite plainly that both in general paresis and in dementia præcox the index of atrophy is in correlation not only with degree of deterioration but also with duration.

It should, however, be taken into consideration that in some of the cases, especially those of longest duration, death has occurred in advanced senility; in other cases there was pronounced general emaciation. There is a possibility that senility or emaciation may raise the index of atrophy, as has already been shown. The question thus arises: To what extent may the atrophy which is apparently in correlation with deterioration and with duration be due in reality to senility or to emaciation, at least as far as the dementia præcox group is concerned?

TABLE 7. CORRELATION BETWEEN INDEX OF ATROPHY AND DURATION OF PSYCHOSIS.

GENERAL PARESIS	DEGREE OF DETERIORATION	DURATION OF PSYCHOSIS		
		1 Year or under	2-4 Years	5 Years or over
	C or C-D.....	9 0.772	23 0.855	3 0.975

DEMENTIA PRÆCOX	DEGREE OF DETERIORATION	DURATION OF PSYCHOSIS		
		Under 5 years	5-20 years	Over 20 years
	B or B-C.....	3 0.304	9 0.551	15 0.704
	C or C-D.....	3 0.580	20 0.627	16 0.755

The small figures give the number of cases in each division; the larger figures give the average index of atrophy.

In order to compare the influence of the deterioration process with that of senile involution, the cases of dementia præcox in which the necessary data are available have been divided into two groups: one comprising those under 60 years of age, but presenting deterioration to at least the degree of C and having a duration of over 20 years; and the other comprising cases over 60 years of age, but presenting deterioration to a degree below C and having a duration of under 20 years. The averages are given in Table 8.

TABLE 8. DETERIORATION PROCESS COMPARED WITH SENILE INVOLUTION IN DEMENTIA PRÆCOX.

Cases under 60 years of age, with degree of deterioration C or over, duration over 20 years.	Cases over 60 years of age, with degree of deterioration under C, duration under 20 years.
8	6
0.717	0.539

The figures in the table seem to show that if senile involution plays any part in the production of brain atrophy in dementia præcox, that part is but a slight one; the bulk of the atrophy is not due to it.

In order now to compare the influence of the deterioration process with that of general emaciation the cases of dementia præcox in which the necessary data are available have been divided into two groups; one comprising cases either of normal nutrition or with a weight deficit of not over 30 per cent, deterioration C or over, duration over 20 years; and the other comprising cases with a weight deficit of over 30 per cent, deterioration under C, duration under 20 years. The calculated averages are given in Table 9.

TABLE 9. DETERIORATION PROCESS COMPARED WITH EMACIATION IN DEMENTIA PRÆCOX.

Cases with weight deficit of not over 30 per cent, deterioration C or over, duration over 20 years.	Cases with weight deficit of over 30 per cent, deterioration under C, duration under 20 years.
12	5
0.781	0.500

The small figures give the number of cases in each group; the larger figures give the average index of atrophy.

The figures in the table seem to show that emaciation, like senile involution, plays but an unimportant part, if

any, in the production of brain atrophy in dementia præcox; the bulk of the atrophy is not due to it.

The conclusion seems justified, as far as this material is concerned, that the deterioration of dementia præcox is connected in some way with changes in the brain which lead to atrophy.

The method here employed can throw no light on details of these changes; for this one must turn rather to methods of histopathology, particularly those which have been recently introduced by Alzheimer and which, as all know, have already yielded findings of the highest significance.^{8, 9, 10}

V. FURTHER COMMENTS ON METHOD IN THE LIGHT OF THE RESULTS.

The results of the present study furnish a basis for an evaluation of the method. The main question is, Does the index of atrophy, as here calculated from the cranial capacity and brain weight, possess any advantage over other means for the detection and measurement of atrophy.

Statistics like those of Boyd,¹¹ Bartels,¹² Tigges,¹³ Matiegka,¹⁴ Mittenzweig,¹⁵ and others, in which brain weight alone is taken into consideration, have not yielded results of great value beyond the demonstration of the general fact that the brains of insane subjects, in cases of "functional" psychoses as well as those of general paresis, senile dementia, and other organic psychoses, show more often than the brains of normal subjects a weight below the average. Considering the wide range of variation of brain weight within normal limits—1000–2000 grams (Bischoff⁴),—it is not surprising that the calculated average has not been found to possess much significance in relation to a given case.

In the present series no less than 34 (22.2 per cent) of the cases belonging to the groups that are characterized by the coarsest atrophy, namely, cerebral arteriosclerosis, general paresis, and senile dementia, showed a brain weight *above* the normal average—1357 grams for men, 1235 grams for women (Vierordt.¹⁶) Of these cases all but six showed an

index of atrophy above 0.600. Naturally, where conditions characterized by slower and less pronounced atrophy are concerned, a mere knowledge of the brain weight is still less serviceable.

Further, if in a given case the brain weight is found to be below the normal average, it obviously is not possible to know from that fact alone whether the defect is an original one or has resulted from atrophy. In the present series there are no less than 25 cases with brain weight *below* the average yet showing an index of atrophy of less than 0.500.

One is not assisted materially by considering, in addition to brain weight, such findings as excess of cerebro-spinal fluid, shrunken gyri, widened sulci, thinned cortex, etc. Southard, for instance, in a recent study of normal-looking brains in psychopathic subjects,¹⁷ has been led to the following remarkable conclusions: "I remain with the impression that gross pathological anatomy has still to prove that *senile dementia*, as we use the term, is attended with any considerable loss of brain substance in a large group of instances." A similar conclusion has been arrived at by McGaffin.¹⁸ In the senile dementia group of the present series—a group of 36 cases—the lowest index of atrophy found was 0.563, in a case of six months' duration, and only three others showed an index below 0.700.

Thus it will be seen that the method here employed readily reveals atrophy and its extent where judgment is apt to fail when attempted on the basis of ordinary means.

It should be noted that the measure which has, for present purposes, been spoken of as index of atrophy is by no means to be regarded as truly such in every case. As already stated in Section I, it is but an index of the average width of the cranio-encephalic space; this space may in some cases be abnormally wide quite independently of atrophy but as a result of hydrocephalus dating from childhood, possibly cranial malformations due to rickets, etc. Several cases in the present series are undoubtedly thus to be explained in view of the fact that in spite of a wide cranio-encephalic space there has been no demonstrable deterioration: Case No. 322 (Infantile Cerebral Paralysis with

Hydrocephalus), Case No. XVII-44, Wcr. (Porencephaly), and possibly some others.

This raises the question, What is the normal average width of the cranio-encephalic space? Only a large series of measurements made upon subjects dying physically sound and with intact nervous apparatus could afford an answer to this question. Unfortunately such measurements are as yet not available. Although exact information on this point does not seem to be indispensable for the correlation of index of atrophy with clinical data in psychiatric cases, it would be of value for certain purposes.

It was hoped that the findings in non-deteriorating psychoses or in other cases where death had occurred a short time after the onset of the illness, *i. e.*, before any considerable loss of substance could be assumed to have taken place, would furnish some indication of the normal width of the cranio-encephalic space; but this hope has not been realized, as the findings in such cases, far from being constant, were rather perplexing. Cases of dementia præcox which had shown but slight deterioration and the duration of which was less than five years, furnished an average index of 0.304; similar cases of from five to ten years' duration gave an average of 0.551. (Table 7.) Yet the average index for cases of manic-depressive insanity was 0.558, and this for typical cases without demonstrable deterioration, all doubtful cases and all atypical ones having been placed in a separate group under the heading of "psychoses allied to manic-depressive insanity." (Table 6.) It would seem either that manic-depressive subjects have in general an abnormally wide cranio-encephalic space, or that the brain changes which are assumed to occur in connection with dementia præcox in the early stages produce swelling which gives place to atrophy only in the more advanced stages of the process. (Reichardt.²)

In calculating the index of atrophy the brain volume has been derived in each case from the brain weight, as stated in Section I, by dividing the latter by 1.037, the average normal specific gravity of the brain, the variations in specific gravity, both normal and abnormal, being ignored.

Possibly the error thus incurred was in some cases considerable, variations between 1.030 and 1.048 having been observed.⁴ The only way to avoid such error would be by determining the specific gravity for each case individually; this would necessitate cutting up the brain and immersing it in water, a procedure which would interfere with other studies and which would, moreover, be hardly worth while for the advantage to be gained as far as our special object is concerned; the latter statement is made advisedly, for actual calculation shows that the maximum error which is theoretically possible in any one of our cases could not exceed 0.043, which, of course, would possess no practical significance. Perhaps it should be stated here that this figure was derived by assuming that in the case in which the heaviest brain was found, one weighing 1722 grams, (Case No. 320, Constitutional Inferiority with Excited Episodes,) and in which, therefore, an error thus incurred would be greatest, the actual specific gravity may have shown the greatest possible deviation from the normal average, *i. e.*, that it may have been, instead of 1.037, actually 1.048: the index of atrophy would then be 0.416 instead of 0.373; in this connection it should be noted that for all other cases the maximum theoretically possible error would be still less, the brain weights being less; and it should be further borne in mind that, while slight deviations from the average normal specific gravity of the brain are probably not uncommon, deviations to the extreme extent assumed above occur but as the rarest exceptions; in other words, the error actually incurred through ignoring possible deviations of individual cases from the normal average was probably to the extent of but a small fraction of the theoretical maximum given above. It may be added, finally, that it would have been to no purpose to determine the specific gravity of excised portions of brain tissue, as the specific gravity of various parts of the brain is not the same.

Perhaps of greater importance is the question of exact procedure to be employed in weighing the brain, *i. e.*, whether it should be weighed *in toto* or after sectioning and

thorough drainage of the fluid from the ventricles; that the results of these two procedures often differ very considerably and in some cases even greatly can readily be shown. Dr. Samuel T. Orton weighed a number of the brains of the Worcester collection twice, first *in toto*, and then again after separating the cerebellum and brain stem, dividing the cerebral hemispheres, and draining the intra-ventricular fluid; later on, following his example, similar double weighings were made at this hospital, and eventually figures for comparison became available in 127 cases.

The difference in weight in these cases varied from 0 to 170 grams, and averaged 27.6. It seems, however, that increase of fluid in the ventricles follows rather closely the increase in the subarachnoid space in cases of atrophy, as the difference between the two weighings varies as a rule with the index of atrophy; this is shown in Table 10, in which the cases are represented in three groups distinguished according to degree of atrophy.

TABLE 10. DIFFERENCES IN RESULTS BETWEEN WEIGHING BRAINS IN TOTO AND AFTER SECTION, AS AFFECTING GROUPS OF CASES DISTINGUISHED ACCORDING TO DEGREE OF ATROPHY.

	GROUP 1 Index of Atrophy Under 0.600	GROUP 2 Index of Atrophy 0.600-0.900	GROUP 3 Index of Atrophy Over 0.900
Average index of atrophy calculated on basis of weights of brains <i>in toto</i>	³⁴ 0.506	⁵⁴ 0.724	³⁹ 1.185
Average index of atrophy calculated on basis of weights after section	0.570	0.806	1.282
Difference	0.064	0.082	0.097

The small figures give the number of cases in each group; the larger figures give the average indexes of atrophy and the differences between them.

In Table 2, in which the entire material is presented, the brain weights *in toto* are given, and the indexes of atrophy

as calculated on that basis, even for the cases in which the weights on section are available, and in all correlations these figures have been used: it seems to us probable that cortical atrophy is in more definite correlation with mental deterioration than atrophy of other parts, such as gives rise to enlargement of the ventricles and increase of intraventricular fluid, although to some extent the two go hand in hand, as the figures in Table 10 seem to show so plainly. At the same time it should be noted that, had the index of atrophy been derived in each case from the brain weight on section, instead of its weight *in toto*, the evidences of atrophy and the differences between its various degrees would have been even more plainly revealed: the contrasts found would have been more marked and the correlations rendered more apparent.

VI. SUMMARY AND CONCLUSIONS.

Neither brain weight alone, nor that measure together with such findings as excess of cerebro-spinal fluid, shrunken appearance of gyri, widened sulci, etc., can serve for precise measurements of brain atrophy.

Such measurements and their correlations with clinical data become possible only when both cranial capacity and brain weight are taken into account.

The difference between cranial capacity, expressed in cubic centimeters, and brain weight, expressed in grams, and likewise the simple ratio between these data, are magnitudes which vary greatly under wholly normal conditions, owing to variations in the sizes of skulls and brains; neither is therefore adapted for use as a normal standard of the relationship between cranial capacity and brain weight.

The measure which most nearly approaches a normal constant is probably that of the average width of the space between the skull and the brain, the cranio-encephalic space.

An index of that space may be derived by subtracting the cube root of the brain volume from the cube root of the cranial capacity according to the following formula in which, as shown, the brain volume is calculated from the

brain weight by dividing the latter by 1.037, the average specific gravity of the brain.

$$\text{Index of atrophy} = \sqrt[3]{\frac{\text{cranial capacity}}{\text{brain weight} \times 1.037}}$$

This formula gives double the width of the space around a cube equivalent to the brain volume enclosed in a cube equivalent to the cranial capacity. The relation of this measure to the actual average width of the cranio-encephalic space, of course, can not be constant, but must vary somewhat as the shape of the brain varies. Its variations are, however, apparently not so great as to impair its value for the study of brain atrophy in correlation with clinical data.

The material of the present study consists of measurements made in 452 cases which came to autopsy and of some clinical data pertaining to these cases.

The measurements comprise those of height, weight, cranial capacity, brain weight, and index of atrophy, *i. e.*, index of the average width of the cranio-encephalic space calculated according to the formula given above.

The clinical data are: age at time of death, clinical classification, duration of psychosis, and degree of mental deterioration expressed in term of an arbitrary scale,—A, B, C, D,—as explained in Section II.

The more important results of the analysis of this material are:

1. The index of atrophy seems to vary somewhat with age, showing increase as age advances.

2. The index of atrophy seems also to vary with the state of nutrition, though not so clearly, showing apparently some increase in cases of emaciation.

3. In cases of insanity the index of atrophy varies with the clinical group: it is greatest in cerebral arteriosclerosis; it is greater in general paresis and in senile dementia than in dementia præcox.

4. There is close correlation between degree of mental deterioration observed clinically and index of atrophy de-

terminated at autopsy: that is to say, mental deterioration, of whatever nature, goes hand in hand with brain atrophy.

5. There is close correlation between duration of the deteriorating psychosis and index of atrophy.

Inasmuch as interest will naturally center on dementia præcox rather than on psychoses occurring on a basis of coarser and better understood brain lesions, a special analysis of the data pertaining to that group has been undertaken with a view to determining the share of the atrophy which is in that connection to be attributed to senility or emaciation.

6. This analysis has shown that if senile involution plays any part in the production of brain atrophy in dementia præcox, that part is but a slight one: the bulk of the atrophy is not due to it.

7. The analysis has also shown that emaciation, like senile involution, plays but an unimportant part, if any, in the production of brain atrophy in dementia præcox: the bulk of the atrophy is not due to it.

The conclusion is therefore drawn that *dementia præcox is associated in some way with changes in the brain which lead to atrophy.*

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A STATISTICAL STUDY OF 1,739 PATIENTS WITH ALCOHOLIC PSYCHOSES.

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The study here presented has to do with 1,739 first admission cases of alcoholic psychoses admitted to the civil hospitals of New York State during the three-year period beginning October 1, 1909, and ending September 30, 1912. Data concerning these patients were obtained by the hospital physicians and reported to the statistician on first admission cards arranged as follows :

FIRST ADMISSION				MALE	
—————STATE HOSPITAL				FEMALE	
NAME	IDENTIFICATION NO.	LEGAL STATUS—	Committed		
PSYCHOSIS—No.	Group	Type	Voluntary		
NATIVITY {	State or Country {	of patient {	of father	of mother	
	See U. S. census tables {	Time in U. S. {			
COLOR—White,	black,	yellow,	red		
CIVIL CONDITION—Single	married	widowed	divorced	separated	
EDUCATION—None	reads and writes	common school	High school	collegiate	
OCCUPATION					
RELIGION (denomination)					
ENVIRONMENT—City	village	rural			
CIRCUMSTANCES—Dependent	marginal	comfortable			
ACTUAL RESIDENCE—County	P. O.				
LEGAL RESIDENCE					
ETIOLOGICAL FACTORS OTHER THAN HEREDITY					
CONSTITUTIONAL MAKE-UP—Defective inferior normal					
HEREDITY (nervous diseases and insanity)					
ALCOHOLIC HABITS—Patient {	abstainer	father {	abstainer		
	moderate		moderate		
	intemperate		intemperate		
	mother {	other relatives (specify)			
	abstainer				
	moderate				
	intemperate				
ACOMPANYING PHYSICAL DISEASES					
DURATION OF PRESENT ATTACK BEFORE ADMISSION yrs. mos. das.					
NO. OF PREVIOUS ATTACKS					
DATE OF ADMISSION		19	AGE ON ADMISSION		yrs.
PRESENTED AT STAFF MEETING		19	BY DR.		
+ = Facts not ascertained		HOSPITAL NO. FOR THE YEAR			
Form 203 Fifth edi.		NOTE—This card for first admission to any hospital for the insane.			

When a patient was discharged a card was forwarded to the statistician setting forth facts concerning the patient with reference to psychosis at time of admission, sex, age at time of discharge, period of hospital residence, condition on discharge, etc. When a patient died in the hospital a death card was sent in giving the age of the patient at death, time spent in the hospital, cause of death, etc. When a discharged patient was readmitted a readmission card was prepared giving facts concerning the patient similar to those enumerated on the first admission card, and in addition thereto a statement of previous attacks and admissions.

The cards were filed in the office of the statistician in order according to identification numbers, all of the cards relating to each patient being brought together.

As the study deals with first admissions only, it is obvious that at the close of the period under consideration none of the 1,739 patients had been in the hospitals more than three years and a portion of them only a few days or weeks.

The aim of the study was to determine definite facts concerning patients with alcoholic insanity with respect to sex, age, type of psychosis, nativity, parentage, color, marital condition, environment, education, occupation, heredity, constitutional make-up, accompanying physical disease, etc., and to ascertain the outcome of each type of the alcoholic psychoses. It was hoped that some new light might be thrown on the cause and prognosis of these forms of mental disorder so that they might be combatted more successfully.

SEX.

Classified according to sex and year of admission, the patients were grouped as follows:

	Males	Females	Total
1910.....	452	131	583
1911.....	444	147	591
1912.....	434	131	565
<hr/>			
Total.....	1,330	409	1,739

It is seen that the number of first admissions of alcoholic cases of each sex did not vary greatly from year to year.

The males outnumbered the females by more than 3 to 1, the percentages of each sex being as follows:

	Males	Females	Total
1910.....	77.5	22.5	100
1911.....	75.1	24.9	100
1912.....	76.8	23.2	100
Total.....	76.5	23.5	100

The sex distribution is markedly influenced by environment as shown on page 255.

Comparing the alcoholic cases with the total first admissions of all psychoses to the civil State hospitals we have:

ALCOHOLIC CASES COMPARED WITH ALL FIRST ADMISSIONS.

	MALES		FEMALES		TOTAL	
	All First Admissions	Alcoholic Cases	All First Admissions	Alcoholic Cases	All First Admissions	Alcoholic Cases
Number						
1910.....	2,957	452	2,607	131	5,564	583
1911.....	3,013	444	2,687	147	5,700	591
1912.....	3,010	434	2,732	131	5,742	565
Total....	8,980	1,330	8,026	409	17,006	1,739
Per cent						
1910.....	100	15.3	100	5.0	100	10.5
1911.....	100	14.7	100	5.5	100	10.4
1912.....	100	14.4	100	4.8	100	9.8
Total....	100	14.8	100	5.1	100	10.2

The alcoholic cases constituted 14.8 per cent of the total males, 5.1 per cent of the total females, and 10.2 per cent of the total of both sexes. The greater prevalence of alcoholic insanity among males corresponds in a measure at least to the greater use of alcoholic beverages by males.

TYPES OF ALCOHOLIC INSANITY.

The term *alcoholic insanity* is a general one embracing several mental diseases that have little in common except etiology. In the classification used by the State Hospital Commission seven types of alcoholic insanity are distinguished as follows:

Pathological intoxication.
 Alcoholic deterioration.
 Delirium tremens.
 Korsakow's disease.
 Acute hallucinosis.
 Chronic hallucinosis.
 Paranoid states.

As some of the alcoholic cases under consideration were not placed in any of these groups an additional group is provided under the caption "All others."

Arranged according to type and sex the first admissions of the three years fall into the following groups:

TYPES OF ALCOHOLIC CASES.

TYPE	Total			1910			1911			1912		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
Pathological intoxication	12	.....	12	4	.....	4	1	.....	1	7	.....	7
Alcoholic deterioration..	100	34	134	38	12	50	33	9	42	29	13	42
Delirium tremens.....	72	9	81	34	3	37	20	4	24	18	2	20
Korsakow's disease.....	183	143	326	53	40	93	65	54	119	65	49	114
Acute hallucinosis.....	516	123	639	161	38	199	190	50	240	165	35	200
Chronic hallucinosis.....	30	9	39	9	5	14	9	2	11	12	2	14
Paranoid states.....	187	52	239	77	23	100	53	10	63	57	19	76
All others.....	230	39	269	76	10	86	73	18	91	81	11	92
Total.....	1,330	409	1,739	452	131	583	444	147	591	434	131	565

It will be noted that each year there were relatively few cases of pathological intoxication and chronic hallucinosis. The percentages of each type in the total cases of each sex for the three years were as follows:

TYPE	PER CENT OF ALL ALCOHOLIC CASES FIRST ADMITTED DURING THE THREE-YEAR PERIOD		
	Males	Females	Total
Pathological intoxication	0.9	.....	0.7
Alcoholic deterioration.....	7.5	8.3	7.7
Delirium tremens.....	5.4	2.2	4.7
Korsakow's disease.....	13.8	35.0	18.8
Acute hallucinosis.....	38.8	30.1	36.7
Chronic hallucinosis.....	2.2	2.2	2.2
Paranoid states.....	14.1	12.7	13.7
All others	17.3	9.5	15.5
Total.....	100.0	100.0	100.0

Among the males, acute hallucinosis is by far the most prominent type; while among the females Korsakow's disease ranks first in the percentage of cases. In view of the fact that the table shows that the number of cases of the several types do not vary greatly from year to year, these percentages of the totals for the three years may be taken as a fairly accurate indication of the relative frequency of these diseases in New York State.

MOVEMENT OF PATIENTS.

(See Table 1, page 242.)

Table 1 sets forth the movement of the patients year by year, both for the entire group and each type. The purpose of this grouping is to account for each patient and to show the disposal of each case leaving the hospital. For the admissions of 1910, the movements of three years are given; for those of 1911, two years; and for those of 1912, one year.

The alcoholic first admissions of 1910 were: Males 452, females 131, total 583. During the first year 158, or 35 per cent, of the males and 26, or 19.8 per cent, of the females were discharged as recovered; 18, or 4 per cent, of the males and 2, or 1.5 per cent, of the females were discharged as improved; 19 males and 1 female were removed from the State and 1 male was discharged as unimproved. Twenty males and 18 females died. At the close of the year 242, or 53.5 per cent, of the males and 84, or 64.1 per cent, of the females remained in the hospitals. In the meantime 6 of the discharged males had been readmitted. During the second year 67, or 14.8 per cent, of the males and 11, or 8.4 per cent, of the females were discharged as recovered; 25, or 5.5 per cent, of the males and 10, or 7.6 per cent of the females were discharged as improved; 7 males and 1 female were removed from the State and 1 male and 1 female were discharged as unimproved. Fifteen males and 10 females died. Eight males and 1 female were readmitted. At the close of the second year there remained in the hospitals 135, or 29.9 per cent, of the males and 52, or 39.7 per cent, of the females. During the third

year 10, or 2.2 per cent, of the males, and 2, or 1.5 per cent, of the females were discharged as recovered; 6, or 1.3 per cent, of the males and 2, or 1.5 per cent, of the females were discharged as improved; 4 males were removed from the State and 3 died. Five males were readmitted. At the close of the third year there still remained in the hospitals 117, or 25.9 per cent, of the males and 48, or 36.6 per cent, of the females.

Comparing these results with those relating to the alcoholic admissions of 1911 and 1912, we find a general correspondence, as shown by the tabulation on page 210.

The table shows that 35 per cent of the males and 19.6 per cent of the females were discharged as recovered within the fiscal year in which they were admitted. Those discharged as improved in the same period were much less, being only 3.4 per cent of the males and 2.4 per cent of the females. The patients who died in the hospital during the year of admission constituted 4.9 per cent of the males, 11.5 per cent of the females, and 6.4 per cent of the total. The fact that the results of the several years are very similar indicates that the averages obtained are of general application.

When we examine the movement of patients within the limits of single types we find a decided lack of similarity. Of the 12 cases of pathological intoxication all but 1 were discharged as recovered during the year of admission, while of the 100 male cases of alcoholic deterioration only 6 were discharged as recovered in the same period.

A fuller discussion of recoveries is given in connection with the tables setting forth time in hospital before recovery, page 233.

AGE AT TIME OF ADMISSION.

(See Table 2, page 246.)

Table 2 classifies the alcoholic patients admitted during 1910, 1911 and 1912 according to age group and type. Of the total 1,739 admissions, 1,108, or 63.7 per cent were between the ages of 30 and 50 years. Only 29, or 1.7 per

MOVEMENT OF ALCOHOLIC CASES.

	Total			Admitted in 1910			Admitted in 1911			Admitted in 1912		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
Number												
Total patients admitted	1330	409	1739	452	131	583	444	147	591	494	131	565
Discharged as recovered												
First year.....	465	80	545	158	26	184	156	32	188	151	22	173
Second year.....				67	11	78	63	27	90			
Third year.....				10	2	12						
Total.....				235	39	274	219	59	278	151	22	173
As improved												
First year.....	45	10	55	18	2	20	11	3	14	16	5	21
Second year.....				25	10	35	21	8	29			
Third year.....				6	2	8						
Total.....				49	14	63	32	11	43	16	5	21
Died												
First year.....	65	47	112	20	18	38	20	14	34	25	15	40
Second year.....				15	10	25	8	5	13			
Third year.....				3		3						
Total.....				38	28	66	28	19	47	25	15	40
Remaining in hospitals												
At end of first year.....	674	262	936	242	84	326	227	94	321	205	84	289
At end of second year.....				135	52	187	128	55	183			
At end of third year.....				117	48	165						
Per Cent												
Total patients admitted	100	100	100	100	100	100	100	100	100	100	100	100
Discharged as recovered												
First year.....	35.0	19.6	31.3	35.0	19.8	31.6	35.1	21.8	31.8	34.8	16.8	30.6
Second year.....				14.8	8.4	13.4	14.2	18.4	15.2			
Third year.....				2.2	1.5	2.1						
Total.....				52.0	29.8	47.0	49.3	40.1	47.0	34.8	16.8	30.6
As improved												
First year.....	3.4	2.4	3.2	4.0	1.5	3.4	2.5	2.0	2.4	3.7	3.8	3.7
Second year.....				5.5	7.6	6.0	4.7	5.5	4.9			
Third year.....				1.3	1.5	1.4						
Total.....				10.8	10.7	10.8	7.2	7.5	7.3	3.7	3.8	3.7
Died												
First year.....	4.9	11.5	6.4	4.4	13.7	6.5	4.5	9.5	5.8	5.8	11.5	7.1
Second year.....				3.3	7.6	4.3	1.8	3.4	2.2			
Third year.....				0.7		0.5						
Total.....				8.4	21.4	11.3	6.3	12.9	8.0	5.8	11.5	7.1
Remaining in hospitals												
At end of first year.....	50.7	64.1	53.8	53.5	64.1	55.9	51.1	63.9	54.3	47.2	64.1	51.2
At end of second year.....				29.9	39.7	32.1	28.8	37.4	31.0			
At end of third year.....				25.9	36.6	28.3						

cent were under 25 years of age and only 145, or 8.3 per cent, above the age of 60. The patients with alcoholic deterioration and Korsakow's disease average older than those of the other types. The totals in the various age groups with percentages appear as follows:

AGES AT TIME OF ADMISSION OF ALCOHOLIC CASES.

AGE GROUP	TOTAL ALCOHOLIC CASES					
	Number			Per Cent		
	Males	Females	Total	Males	Females	Total
20-24 years.....	26	3	29	1.9	0.7	1.7
25-29 years.....	110	25	135	8.3	6.1	7.7
30-34 years.....	186	53	239	14.0	13.0	13.7
35-39 years.....	253	82	335	19.0	20.1	19.3
40-44 years.....	214	77	291	16.1	18.8	16.7
45-49 years.....	174	69	243	13.1	16.9	14.0
50-54 years.....	145	43	188	10.9	10.5	10.8
55-59 years.....	107	27	134	8.0	6.6	7.7
60-64 years.....	66	17	83	4.9	4.2	4.8
65-69 years.....	39	7	36	2.2	1.7	2.0
70-74 years.....	13	2	15	1.0	0.5	0.9
75-79 years.....	1	1	2	0.1	0.2	0.1
80 years and over...	1	..	1	0.1	...	0.1
Unascertained.....	5	3	8	0.4	0.7	0.5
TOTAL	1330	409	1739	100.0	100.0	100.0

The average age at time of admission was approximately 42 years.

It is apparent that the mental break-down from the use of alcohol occurs principally in middle life. This fact has a bearing on the question of the primary etiological factor in cases of alcoholic insanity, it being contended by some that the use of alcohol is but an incident in the life of the individual rather than the cause of his insanity. If such contention were correct we should expect the first admissions with alcoholic insanity to average younger than those of other psychoses. Such, however, is not the case. Of the 6,061 first admissions to the civil State hospitals in 1913, 1,637, or 27 per cent, were under 30 years of age at the time of admission. If we exclude the 594 patients with senile psychoses, none of whom were under 50 years of age, the percentage of first admissions under 30 years was 29.9.

Of the 1,739 alcoholic cases under consideration only 164, or 9.4 per cent, were under 30 years of age when admitted. Had most of these alcoholic cases been persons of marked psychopathic tendencies it would seem that a larger proportion of them would have become insane at an earlier age. The fact that 90.6 per cent of them did not succumb until the period of middle life and then only after the excessive use of alcohol would strongly indicate the dominance of alcohol as an etiological factor. This should not be construed as excluding psychopathic tendencies which in many cases undoubtedly play a large part.

CONSTITUTIONAL MAKE-UP OF FIRST ADMISSIONS WITH ALCOHOLIC PSYCHOSES.

(See Table 3, page 247.)

With respect to constitutional make-up three classes were distinguished, namely: Defective, inferior and normal. The term "defective" includes the feeble-minded and imbeciles, and the term "inferior" those "persons who, while not actually defective, have not kept abreast of their opportunities, who, with educational opportunities have not acquired an education, or who have not prospered by reason of poor judgment and lack of self-control and initiative."

Classified under these heads the following groups appear:

CONSTITUTIONAL MAKE-UP OF ALCOHOLIC CASES.

	NUMBER			PER CENT OF ASCERTAINED CASES		
	Males	Fe- males	Total	Males	Fe- males	Total
Defective	6	.....	6	0.5	.....	0.4
Inferior	128	39	167	10.2	10.4	10.3
Normal	1118	336	1454	89.3	89.6	89.3
Unascertained	78	34	112	.....	.....	.....
Total	1330	409	1739	100.0	100.0	100.0

From these figures it is evident that the defectives form but a very small part of the alcoholic cases. It is also noteworthy that but 10.3 per cent of the ascertained cases

CONSTITUTIONAL MAKE-UP OF THE PATIENTS WITH VARIOUS
TYPES OF ALCOHOLIC INSANITY.

TYPES	NUMBER			PER CENT OF ASCERTAINED CASES		
	Males	Females	Total	Males	Females	Total
Pathological intoxication						
Defective.....	2		2	16.7		16.7
Inferior.....	16		16	83.3		83.3
Normal.....						
Unascertained.....						
Total.....	12		12	100.0		100.0
Alcoholic deterioration						
Defective.....						
Inferior.....	14	5	19	14.7	16.1	15.1
Normal.....	81	26	107	85.3	83.9	84.9
Unascertained.....	5	3	8			
Total.....	100	34	134	100.0	100.0	100.0
Delirium tremens						
Defective.....						
Inferior.....	5		5	7.1		6.4
Normal.....	65	8	73	92.9	100.0	93.6
Unascertained.....	2	1	3			
Total.....	72	9	81	100.0	100.0	100.0
Korsakow's disease						
Defective.....						
Inferior.....	5	5	10	3.1	4.0	3.5
Normal.....	158	121	279	96.9	96.0	96.5
Unascertained.....	20	17	37			
Total.....	183	143	326	100.0	100.0	100.0
Acute hallucinosis						
Defective.....	2		2	0.4		0.3
Inferior.....	63	15	78	12.9	12.7	12.8
Normal.....	425	103	528	86.7	87.3	86.9
Unascertained.....	26	5	31			
Total.....	516	123	639	100.0	100.0	100.0
Chronic hallucinosis						
Defective.....						
Inferior.....	4		4	14.3		10.8
Normal.....	24	9	33	85.7	100.0	89.2
Unascertained.....	2		2			
Total.....	30	9	39	100.0	100.0	100.0
Paranoid states						
Defective.....	2		2	1.1		0.9
Inferior.....	14	10	24	7.8	21.7	10.6
Normal.....	164	36	200	91.1	78.3	88.5
Unascertained.....	7	6	13			
Total.....	187	52	239	100.0	100.0	100
All other types						
Defective.....	2		2	0.9		0.8
Inferior.....	21	4	25	9.8	10.8	10.0
Normal.....	191	33	224	89.3	89.2	89.2
Unascertained.....	16	2	18			
Total.....	230	39	269	100.0	100.0	100.0

are rated as inferior. While accurate comparisons of the make-up of alcoholic cases with that of the general population are not possible, it is probable that no great disparity exists. This would not imply that the alcoholic cases as a class do not differ in some respects from the general population, but that in intellectual capacity they represent a fair average. They may in addition, and probably do, have certain tendencies or weaknesses that make them comparatively easy prey to the alcoholic habit.

A comparison of the make-up of the patients with the various types is given in the tabulation on page 213.

The highest percentages of inferior make-up are found in the cases of alcoholic deterioration, the acute hallucinoses and the paranoid states, and the lowest in the cases of delirium tremens and Korsakow's disease.

PHYSICAL DISEASES ACCOMPANYING THE VARIOUS TYPES OF ALCOHOLIC PSYCHOSES.

(See Table 4, page 248.)

In compiling Table 4 an effort was made to ascertain the extent and nature of the physical diseases accompanying the alcoholic psychoses. It was found that of the 1,739 cases, 867, or approximately 50 per cent, were free from physical disease. Many of the remaining 50 per cent were reported as suffering from two or more distinct physical diseases. In such cases each disease was enumerated, the result showing the number of patients afflicted with each disease.

It will be noted that diseases of the circulatory system and of the nervous system are the most prevalent diseases among the alcoholic cases. No less than 32.3 per cent of the females were suffering from diseases of the nervous system. Excluding cases of Korsakow's disease, the percentage was 8.7.

Of the general diseases pulmonary tuberculosis is most prominent, it being reported in 47 cases. Syphilis appears in 25 cases and anemia in 28 cases.

A summary of the results obtained appears in the following tabulation:

DISEASES ACCOMPANYING THE ALCOHOLIC PSYCHOSES.

DISEASES	NUMBER			PER CENT OF TOTAL PATIENTS		
	Males	Females	Total	Males	Females	Total
General.....	81	40	121	6.1	9.8	7.0
*Of nervous system.....	145	132	277	10.9	32.3	15.9
Of circulatory system.....	254	61	315	19.1	14.9	18.1
Of respiratory system.....	28	12	40	2.1	2.9	2.3
Of digestive system.....	75	35	110	5.6	8.6	6.3
Of genito-urinary system.....	68	26	94	5.1	6.4	5.4
All other.....	81	23	104	6.1	5.6	6.0
No physical disease.....	698	169	867	52.5	41.3	49.9
Unascertained.....	79	13	92	6.0	3.2	5.3

*The numbers here include neuritis as reported with cases of Korsakow's disease.

Among the diseases of the nervous system neuritis in its various forms is by far the most important, it being reported in a total of 234 cases. Two hundred seven of these cases were of Korsakow's disease in which polyneuritis is an essential part.

Of the circulatory diseases arteriosclerosis appears in the largest number of cases. Endocarditis and organic disease of the heart are also prominent. Gastritis was found in but 22 cases and cirrhosis of liver, in 30. Nephritis was reported in 48 cases.

The following summary shows the comparative prevalence of the principal diseases reported:

PRINCIPAL DISEASES ACCOMPANYING ALCOHOLIC PSYCHOSES.

	NUMBER			PER CENT OF TOTAL CASES		
	Males	Fe- males	Total	Males	Fe- males	Total
Pulmonary tuberculosis.....	34	13	47	2.6	3.2	2.7
Syphilis.....	19	6	25	1.4	1.5	1.4
Anemia.....	11	17	28	0.8	4.2	1.6
*Neuritis (all forms).....	110	124	234	8.3	30.3	13.5
Endocarditis.....	19	13	32	1.4	3.2	1.8
Organic disease of heart.....	74	18	92	5.6	4.4	5.3
Arteriosclerosis.....	136	23	159	10.2	5.6	9.1
Cirrhosis of liver.....	25	5	30	1.9	1.2	1.7
Nephritis.....	29	19	48	2.2	4.6	2.8

* Includes cases of Korsakow's disease.

From the foregoing tabulation it appears that including the Korsakow cases 30.3 per cent of the female cases were suffering from neuritis and that 10.2 per cent of the male cases had arteriosclerosis at the time of admission.

The cases reported as free from physical disease were distributed among the various types as follows:

CASES FREE FROM PHYSICAL DISEASE.

TYPES	NUMBER			PER CENT OF TOTAL OF EACH TYPE		
	Males	Fe- males	Total	Males	Fe- males	Total
Pathological intoxication.....	8	.....	8	66.7	.....	66.7
Alcoholic deterioration.....	43	16	59	43.0	47.1	44.0
Delirium tremens.....	36	3	39	50.0	33.3	48.1
Korsakow's disease.....	32	18	50	17.5	12.6	15.3
Acute hallucinosis.....	342	80	422	66.3	65.0	66.0
Chronic hallucinosis.....	21	4	25	70.0	44.4	64.1
Paranoid states.....	114	33	147	61.0	63.5	61.5
Other types.....	102	15	117	44.3	38.5	43.5
Total.....	698	169	867	52.5	41.3	49.9

The percentage of male cases reported free from physical disease is considerably greater than that of the female cases in every type except alcoholic deterioration and paranoid states. We have already noted the association of polyneuritis with Korsakow's disease. While a like association of physical and mental disease does not seem to be present in any of the other types certain physical diseases are more prominent in some types than in others. Arteriosclerosis and organic disease of the heart are present in a relatively large number of the cases of alcoholic deterioration and paranoid states, and gastritis and syphilis appear principally in cases of the acute hallucinatory type.

COLOR OF PATIENTS WITH ALCOHOLIC PSYCHOSES.

(See Table 5, page 250.)

Table 5 shows the color of patients with alcoholic psychoses admitted during the three-year period under consideration. Naturally the whites greatly predominate. The totals taken from the table with percentages computed are as follows:

COLOR OF PATIENTS WITH ALCOHOLIC PSYCHOSES.

	NUMBER			PER CENT		
	Males	Fe- males	Total	Males	Fe- males	Total
White	1292	397	1689	97.1	97.1	97.1
Black	36	12	48	2.7	2.9	2.7
Yellow	1	.....	1	0.1	.....	0.1
Red	1	.....	1	0.1	.....	0.1
Total.....	1330	409	1739	100.0	100.0	100.0

It will be noted that the percentage of whites is the same in both sexes.

The Federal census of 1910 gives the population of the State by sex and color as follows:

	Males	Females	Total
White	4,511,327	4,455,518	8,966,845
Black	64,034	70,157	134,191
Red and Yellow	9,236	3,342	12,578
Total.....	4,584,597	4,529,017	9,113,614

Using these figures as a basis and computing the number of patients per 100,000 of the general population we have:

NUMBER OF PATIENTS WITH ALCOHOLIC PSYCHOSES PER 100,000
OF THE GENERAL POPULATION GROUPED ACCORDING TO
COLOR.

COLOR	NUMBER OF PATIENTS ADMITTED IN THREE- YEAR PERIOD			NUMBER PER 100,000 OF GENERAL POPU- LATION		
	Males	Fe- males	Total	Males	Fe- males	Total
White.....	1292	397	1689	28.6	8.9	18.8
Black.....	36	12	48	56.2	17.1	35.8
Red and yellow.....	2	.....	2	21.6	.....	15.9
	1330	409	1739	29.0	9.0	19.1

According to these figures the rate of alcoholic insanity among the negro population of the State is approximately twice that among the white population. It is possible that some of the difference in rate may be accounted by differ-

ence in age distribution, but the numbers involved are too small for correction according to age periods.

Acute hallucinosis is the most prevalent type both among whites and colored; of the latter, 26 of the 48 cases were of this type.

MARITAL CONDITION OF FIRST ADMISSIONS WITH ALCOHOLIC PSYCHOSES.

(See Table 6, page 251.)

Table 6 sets forth the marital condition of the 1,739 alcoholic cases grouped according to types. Summarized, the following results appear:

MARITAL CONDITION OF PATIENTS WITH ALCOHOLIC PSYCHOSES.

	NUMBER			PER CENT OF TOTAL		
	Males	Females	Total	Males	Females	Total
Single.....	531	54	585	39.9	13.2	33.6
Married.....	565	231	796	42.5	56.5	45.8
Widowed.....	132	80	212	9.9	19.5	12.2
Divorced.....	16	9	25	1.2	2.2	1.4
Separated.....	78	31	109	5.9	7.6	6.3
Unascertained.....	8	4	12	0.6	1.0	0.7
Total.....	1330	409	1739	100.0	100.0	100.0

Comparing these percentages with those for the whole population of the State, 15 years of age and over, according to the Federal Census of 1910, we have:

MARITAL CONDITION OF PATIENTS WITH ALCOHOLIC PSYCHOSES COMPARED WITH THAT OF THE WHOLE POPULATION OF THE STATE, 15 YEARS OF AGE AND OVER.

	PER CENT OF PATIENTS WITH ALCOHOLIC PSYCHOSES			PER CENT OF TOTAL POPULATION OF THE STATE, 15 YEARS OF AGE AND OVER		
	Males	Females	Total	Males	Females	Total
Single.....	39.9	13.2	33.6	39.8	33.7	36.8
Married, including separated, but not legally divorced.....	48.4	64.1	52.1	55.2	54.5	54.9
Widowed.....	9.9	19.5	12.2	4.4	11.3	7.8
Divorced.....	1.2	2.2	1.4	0.2	0.3	0.3
Unascertained.....	0.6	1.0	0.7	0.4	0.2	0.2
Total.....	100.0	100.0	100.0	100.0	100.0	100.0

The percentage of single females among the alcoholic patients is strikingly low compared with that of the general population. The discrepancy is partly accounted for by the greater proportion of women from 15 to 20 years of age among the general population. It is also probable that excessive indulgence in alcoholic beverages is more frequent among married women. The married males among the alcoholic patients are relatively less than among the general population. With the married females the reverse is true. The widowed and divorced constitute a much larger part of the alcoholic cases than of the general population.

From these percentages it is apparent that the use of alcohol by the persons under consideration did not prevent them from entering into the marital state to the average extent. The large percentages of widowed, divorced and separated among the alcoholic cases, however, indicate that, either through the use of alcohol or some other cause, married life was not normally successful. Back of the divorces, separations and early deaths are the unrecorded quarrels, debauches, cruelties, privations and diseases that too often accompany the excessive use of alcohol.

The tabulations also indicate that the alcoholic cases average normal from the social standpoint, that there is nothing in their make-up which causes them to shun the society of others or to avoid the marital relations.

The marital condition of the patients of the various types of alcoholic psychosis offer few noteworthy divergences from the general average. The acute hallucinatory type has relatively a large number of single patients while Korsakow's disease and the paranoid states have more than the average proportion of married patients.

FAMILY HISTORY OF PATIENTS WITH ALCOHOLIC PSYCHOSES.

(See Table 7, page 252.)

In studying the family history of the alcoholic cases a separate study was made with respect to insanity, alcoholism, and nervous diseases. The first section of the table has to do with the family history of insanity. Out of the

1,739 cases, 964 were reported as having no history of insanity in the family, and the family history of 439 cases was unascertained. The remaining 336 patients had a family history of insanity. The psychoses were distributed among the relatives as follows:

FAMILY HISTORY OF INSANITY.

	NUMBER			PER CENT OF ASCERTAINED CASES		
	Males	Females	Total	Males	Females	Total
Total cases.....	1330	409	1739	....	....	....
Father.....	37	11	48	3.7	3.8	3.7
Mother.....	34	18	52	3.4	6.1	4.0
Children.....	4	1	5	0.4	0.3	0.4
Brothers or sisters.....	84	28	112	8.3	9.6	8.6
Paternal grand-parents.....	11	6	17	1.1	2.0	1.3
Maternal grand-parents.....	19	2	21	1.9	0.7	1.6
Uncles, aunts and cousins.....	126	31	157	12.5	10.6	12.1
No history of insanity.....	748	216	964	74.3	73.7	74.2
Unascertained.....	333	116	439	....	....	....

NOTE: In compiling this table and the following ones relating to the family history of alcoholism and nervous diseases each disorder reported was enumerated, but only one of the same group of relatives was counted.

According to these figures the father of the patient was insane in only 3.7 per cent of the cases, and the mother in but 4.0 per cent of the cases. The fact that a total of 336, or 25.8 per cent, of the ascertained cases had a history of insanity in the family would seem to indicate that inheritance is a factor, but not a primal one in the causation of these psychoses.

The numbers of cases among the various types in which the parents are reported as insane are too small to enable any general comparisons to be drawn.

In the study of the family history of alcoholism more significant results were obtained. Of the 1,739 cases, 727, or 41.8 per cent, had no family history of alcohol, and in 451, or 25.9 per cent, of the cases the family history of alcoholism was unascertained. The remaining 561 cases had a positive family history of alcoholism and of these the father was reported insane in 411 cases. A summary of the results show the following:

FAMILY HISTORY OF ALCOHOLISM.

	NUMBER			PER CENT OF ASCERTAINED CASES		
	Males	Females	Total	Males	Females	Total
Total cases.....	1330	409	1739	.....	.....	.....
Father.....	310	101	411	30.5	37.0	31.9
Mother.....	30	24	54	3.0	8.8	4.2
Children.....	1	2	3	0.1	0.7	0.2
Brothers or sisters.....	133	53	186	13.1	19.4	14.4
Paternal grand-parents.....	7	1	8	0.7	0.4	0.6
Maternal grand-parents.....	9	1	10	0.9	0.4	0.8
Uncles, aunts or cousins.....	68	9	77	6.7	3.3	6.0
No history of alcohol.....	593	134	727	58.4	49.1	56.4
Unascertained.....	315	136	451	.....	.....	.....

The table shows that among the ascertained cases, 30.5 per cent of the male patients and 37 per cent of the female patients had intemperate fathers, while 3 per cent of the males and 8.8 per cent of the females had intemperate mothers. Intemperance on the part of the father is thus seen to be present to a striking degree and would seem to indicate a strong hereditary influence. The high percentages of alcoholic parents of female patients is especially noteworthy.

A high rate of alcoholism also appears among the brothers and sisters of the patients. Of the total ascertained cases 56.4 per cent had no family history of alcoholism. The prevalence of alcoholism among the fathers of the patients with the several types varies considerably as will be noted by the following table:

ALCOHOLISM OF FATHERS OF PATIENTS WITH VARIOUS TYPES OF ALCOHOLIC PSYCHOSES.

	NUMBER			PER CENT OF ASCERTAINED CASES OF EACH TYPE		
	Males	Females	Total	Males	Females	Total
Pathological intoxication.....	7	.....	7	70.0	.....	70.0
Alcoholic deterioration.....	20	8	28	28.0	42.1	29.2
Delirium tremens.....	27	4	31	42.9	50.0	43.7
Korsakow's disease.....	24	30	54	22.0	33.0	27.0
Acute hallucinosis.....	128	34	162	30.8	37.4	32.0
Chronic hallucinosis.....	9	4	13	45.0	80.0	52.0
Paranoid states.....	37	10	47	27.6	31.3	28.3
All other types.....	58	11	69	31.2	40.7	32.4

The general percentage of alcoholic fathers among the ascertained cases is 31.9.

In order to compare these results with the percentage of alcoholic fathers of patients with other psychoses, a similar study was made of 5489 first admissions of 1913 with non-alcoholic psychoses. The following results were obtained :

ALCOHOLISM OF FATHERS OF NON-ALCOHOLIC FIRST ADMISSIONS
OF 1913.

	Males	Females	Total
Non-alcoholic cases.....	2753	2736	5489
Cases in which family history of alcoholism was ascertained	1749	1970	3719
Cases with alcoholic fathers			
(a) Number.....	283	296	579
(b) Per cent.....	16.2	15.0	15.6

Comparing these percentages with those given in the preceding table we note that alcoholism of fathers is practically twice as frequent in the alcoholic cases as in the non-alcoholic ones. It seems a reasonable conclusion, therefore, that alcoholism of the father is a factor in causing alcoholic insanity in the children.

In order to ascertain the extent of neuropathic conditions other than insanity among the relatives of the alcoholic patients an enumeration was made of all cases of hysteria, neurasthenia, epilepsy, locomotor ataxia, chorea and motor tics reported. The results summarized are as follows :

FAMILY HISTORY OF NERVOUS DISEASES (OTHER THAN INSANITY.)

	NUMBER			PER CENT OF ASCERTAINED CASES		
	Males	Females	Total	Males	Females	Total
Father	11	1	12	1.1	0.3	0.9
Mother.....	9	10	19	0.9	3.4	1.5
Children.....	2	.....	2	0.2	.....	0.2
Brothers and sisters.....	18	11	29	1.8	3.8	2.2
Paternal grand-parents.....	2	.....	2	0.2	.....	0.2
Maternal grand-parents.....	3	.....	3	0.3	.....	0.2
Uncles, aunts or cousins.....	14	2	16	1.4	0.7	1.2
No history of nervous diseases.....	948	270	1218	94.5	92.5	94.1
Unascertained	327	117	444	.....	.....	.....

It is apparent from these figures that the alcoholic patients as a rule do not come from neuropathic families. The relatives of 94.1 per cent of the ascertained cases are reported as having no history of nervous diseases other than insanity.

LITERACY OF PATIENTS WITH ALCOHOLIC PSYCHOSES.

(See Table 8, page 254.)

The degree of literacy attained by the patients with alcoholic psychoses is an index of the mental grade of the patients as well as of their opportunities during the school period.

A summary of Table 8 shows the following :

LITERACY OF PATIENTS WITH ALCHOLIC PSYCHOSES.

	NUMBER			PER CENT		
	Males	Females	Total	Males	Females	Total
None.....	81	29	110	6.1	7.1	6.3
Reads and writes.....	253	102	355	19.0	24.9	20.4
Common school.....	913	253	1166	68.6	61.9	67.0
High school.....	53	13	66	4.0	3.2	3.8
Collegiate.....	14	1	15	1.1	0.2	0.9
Unascertained.....	16	11	27	1.2	2.7	1.6
Total.....	1330	409	1739	100.0	100.0	100.0

It appears from the table that 6.1 per cent of the males and 7.1 per cent of the females were illiterate. These percentages are but slightly higher than those found by the Federal Census Bureau for the whole population of the State 10 years of age and over in 1910. The percentage of illiterate males as given by such Census was 5.0 and of females 5.9. The Census did not give the other degrees of literacy.

The illiterate among the 5,742 first admissions of 1912 were found to be 6.4 per cent of the males and 10.9 per cent of the females.

From these comparisons it would appear that the alcoholic patients rank in literacy but little lower than the general population, and considerably higher than the insane with other psychoses.

A comparison of the degree of literacy of the alcoholic patients with that of the general population is not possible because of lack of data concerning the latter.

A comparison of the degree of literacy of the alcoholic patients with the 5,489 non-alcoholic cases admitted to the State hospitals in 1913 shows the following :

DEGREE OF LITERACY OF ALCOHOLIC AND NON-ALCOHOLIC PATIENTS COMPARED.

DEGREE OF LITERACY	NON-ALCOHOLIC PATIENTS OF 1913			ALCOHOLIC PATIENTS OF 1910, 1911, 1912			NON-ALCOHOLIC PATIENTS OF 1913		
	NUMBER			PER CENT			PER CENT		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
None.....	186	314	500	6.1	7.1	6.3	6.8	11.5	9.1
Reads and writes.....	639	554	1193	19.0	24.9	20.4	23.2	20.3	21.7
Common school.....	1595	1566	3161	68.6	61.9	67.0	57.9	57.2	57.6
High school.....	147	178	325	4.0	3.2	3.8	5.3	6.5	5.9
Collegiate.....	55	27	82	1.1	0.2	0.9	2.0	1.0	1.5
Unascertained.....	131	97	228	1.2	2.7	1.6	4.8	3.5	4.2
Total.....	2753	2736	5489	100.0	100.0	100.0	100.0	100.0	100.0

The non-alcoholic patients of 1913 show a higher degree of illiteracy but also show a higher percentage of persons of high school and collegiate grade. Practically two-thirds of the alcoholic patients are reported as having a common school education. Only 4.7 per cent are reported as having attended high school or college. This would seem to indicate that these patients represent an average type, not mentally deficient nor mentally brilliant.

ENVIRONMENT OF PATIENTS WITH ALCOHOLIC PSYCHOSES.

(See Table 9, page 255.)

Table 9 gives the environment of the patients with alcoholic psychoses classified with reference to the various types. Three classes are distinguished: Those living in cities, *i. e.*, towns of 8,000 inhabitants and over; those living in villages, *i. e.*, compact communities of 50 to 8,000 inhabitants; and those living in rural districts.

The totals are grouped as follows:

ENVIRONMENT OF PATIENTS WITH ALCOHOLIC PSYCHOSES.

	NUMBER			PER CENT		
	Males	Females	Total	Males	Females	Total
City.....	1078	382	1460	81.1	93.4	83.9
Village.....	168	18	186	12.6	4.4	10.8
Rural.....	69	4	73	5.2	1.0	4.2
Unascertained.....	15	5	20	1.1	1.2	1.1
TOTAL.....	1330	409	1739	100.0	100.0	100.0

It is seen from the foregoing tabulation that 81.1 per cent of the male patients and 93.4 per cent of the female patients lived in cities; 12.6 per cent of the males and 4.4 per cent of the females lived in villages; and only 5.2 per cent of the males and 1.0 per cent of the females lived in rural districts. The environment of 1.1 per cent of the patients could not be ascertained.

The Federal Census of 1910 gives the percentage of the general population living in places of 2,500 inhabitants or more as 78.8. It is apparent therefore that a disproportionate number of the alcoholic patients live in cities. Data for a close comparison of the percentages are unfortunately not available. The small percentage of cases from rural districts corresponds to some extent at least to the comparatively little use of alcoholic drinks by the people of such districts. Only 4 or less than 1 per cent, of the female cases lived in rural districts at the time of admission. In 1912 not a single female case of alcoholic insanity was admitted to the State hospitals from rural districts. Of the 4 cases above mentioned, 2 were cases of alcoholic deterioration and 2 of acute hallucinosis.

The environment of the various types does not vary in marked degree from that of the class as a whole.

OCCUPATION PREVIOUS TO ADMISSION OF PATIENTS WITH ALCOHOLIC PSYCHOSES.

(See Table 10, page 256.)

Table 10 gives the occupation previous to admission of the alcoholic patients under consideration. As the kinds

of employment are so numerous and diverse the number of divisions in the table are large and the number of patients in each division correspondingly small. The table, however, is of considerable value as an indication of the occupations in which alcoholic patients are most likely to be found. Among the males the occupations in which one or more per cent of the patients are classed, are as follows:

LEADING OCCUPATIONS OF MALE PATIENTS WITH ALCOHOLIC
PSYCHOSES.

Occupation	Number	Per Cent
Farmer.....	40	3.0
Electrician.....	15	1.1
Bartender.....	27	2.0
Hotel or saloon keeper.....	20	1.5
Waiter.....	19	1.4
Cook.....	15	1.1
Laborer (unskilled).....	357	26.8
Porter.....	25	1.9
Agent (solicitor).....	16	1.2
Clerk.....	41	3.1
Accountant.....	15	1.1
Drayman, etc.....	65	4.9
Salesman.....	26	2.0
Railroad employee.....	18	1.4
Carpenter, etc.....	43	3.2
Mason, etc.....	34	2.6
Painter.....	24	1.8
Roofer.....	14	1.1
Plumber.....	23	1.7
Baker.....	14	1.1
Butcher.....	17	1.3
Blacksmith.....	21	1.6
Machinist.....	30	2.3
Printer.....	16	1.2
Tailor.....	23	1.7
Engineer and fireman (stationary).....	22	1.7

The above list of occupations in each of which 1 per cent or more of the male patients are represented shows clearly that manual rather than intellectual pursuits predominate. Unskilled laborers are by far the largest group and constitute 26.8 per cent of the whole. Draymen and teamsters form the next largest group and carpenters and joiners the next. Only 47, or 3.5 per cent, of the male patients were

bartenders or saloon keepers. Three per cent were farmers and 4.2 per cent were clerks and accountants. The learned professions are represented by 1 physician, 5 lawyers and 1 teacher.

The occupations of the female patients prior to admission were naturally less diverse than those of the male patients but many different lines of employment are represented. The occupations in which 2 per cent or more of the female patients were engaged are as follows :

OCCUPATIONS OF FEMALE PATIENTS WITH ALCOHOLIC
PSYCHOSES.

Occupation	Number	Per Cent
Wife of hotel or saloon keeper.....	9	2.2
Cook.....	9	2.2
Wife of laborer.....	48	11.7
Wife of drayman, etc.....	22	5.4
Wife of painter.....	11	2.7
Domestic servant.....	66	16.1
Laundress.....	9	2.2
Housewife or housekeeper.....	34	8.3

The groups "domestic servant" and "wife of laborer" together correspond quite closely in relative magnitude to the group of unskilled laborers among the males. The female as well as the male alcoholic patients come very largely from people who support themselves by the work of their hands. It is also probable that these occupations furnish a disproportionate part of the patrons of the saloons. It will be noted also that many of these occupations do not afford steady work throughout the year. A period of regular work will often be followed by a period of unemployment, a condition which facilitates the formation of the drink habit and tends to perpetuate it. The table seems to show little, if any, relation between type of alcoholic insanity and occupation.

NATIVITY OF PATIENTS WITH ALCOHOLIC PSYCHOSES.

(See Table 11, page 260.)

Table 11 gives the nativity of the alcoholic patients classified according to types. The totals with corresponding percentages appear as follows:

NATIVITY OF PATIENTS WITH ALCOHOLIC PSYCHOSES.

NATIVITY	NUMBER			PER CENT		
	Males	Females	Total	Males	Females	Total
Native	722	195	917	54.3	47.7	52.7
Total foreign-born	605	213	818	45.5	52.1	47.1
Nativity unascertained	3	1	4	0.2	0.2	0.2
Austria-Hungary	59	15	74	4.4	3.7	4.3
Canada	29	10	39	2.2	2.4	2.2
England and Wales	40	24	64	3.0	5.9	3.7
France	6	.....	6	0.5	.....	0.3
Germany	112	19	131	8.4	4.6	7.5
Ireland	217	119	336	16.3	29.1	19.3
Italy	37	1	38	2.8	0.2	2.2
Russia and Poland	43	4	47	3.2	1.0	2.7
Scandinavia	23	4	27	1.7	1.0	1.6
Scotland	19	8	27	1.4	2.0	1.6
All other foreign countries	20	9	29	1.5	2.2	1.7
Total	1330	409	1739	100.0	100.0	100.0

It will be noted that 605, or 45.5 per cent, of the male patients and 213, or 52.1 per cent, of the female patients were foreign-born. The nativity of 4 patients was not ascertained. Of the 818 foreign-born patients, 585, or 71.5 per cent were from Great Britain, Ireland, Germany and Scandinavia, countries which furnished the older immigration; while only 159 patients, of 19.4 per cent came from Austria-Hungary, Russia, and Italy, countries furnishing the bulk of the newer immigration.

The relatively large number of cases appearing in the older immigration is more clearly shown by the following tabulation on page 229.

From this tabulation it appears that the number of native patients per 100,000 of the general population is 14.4 while that of the foreign-born is 29.8. Remarkable differences in the relative number of patients of the different nationalities is shown. These differences are partly accounted for by differences in age, the early immigrants averaging much older than the later arrivals. It is probable, however, that most of the differences are due to the diverse habits of the people of the several nationalities with respect to the use of alcoholic beverages. Nearly all the

NATIVITY OF ALCOHOLIC CASES COMPARED WITH NATIVITY OF
GENERAL POPULATION.

NATIVITY	POPULATION 1910	ALCOHOLIC CASES	NUMBER OF ALCOHOLIC CASES PER 100,000 OF THE POPULATION
Native.....	6,365,603	917	14.4
Foreign-born.....	2,748,011	818	29.8
Unascertained.....		4	
Austria-Hungary.....	341,836	74	21.6
Canada.....	122,642	39	31.8
England and Wales.....	153,930	64	41.6
France.....	23,436	6	25.6
Germany.....	436,874	131	30.0
Ireland.....	367,877	336	91.3
Italy.....	472,192	38	8.0
Russia and Poland.....	558,952	47	8.4
Scandinavia.....	91,251	27	29.6
Scotland.....	39,429	27	68.5
All other foreign countries....	139,542	29	20.8
Total	9,113,614	1,739	19.1

nationalities showing a high ratio of alcoholic insanity use strong alcoholic liquors to a considerable extent, while those with a low ratio use principally beer and light wines.

The relative frequency of the various types of alcoholic insanity among the several nationalities is shown by the tabulation on page 230.

Noteworthy differences are seen in the relative frequency of the various types of disease among the several nationalities. Cases of alcoholic deterioration, which form 7.7 per cent of the whole number, constitute 12.8 per cent of the patients born in Canada, and 12.5 per cent of the patients born in England. A relatively high rate of delirium tremens is noted among the patients born in Canada and Germany and a relatively low rate among patients born in Ireland and England. There were no cases of delirium tremens among patients born in Scotland and Italy. The percentage of Korsakow's disease is relatively high among the patients from England, Ireland and Scotland, while acute hallucinosis is relatively prominent among the patients from Austria-Hungary, Italy and Russia. There are but few cases of paranoid states among the Russians.

Referring to Table 11, it will be noted that 45, or 37.8 per cent, of the women patients from Ireland were suffering

DISTRIBUTION OF TYPES OF ALCOHOLIC INSANITY AMONG THE SEVERAL NATIONALITIES.

	TOTAL		PATHOLOGICAL INTOXICATION		ALCOHOLIC DETERIORATION		DELIRIUM TREMENS		KORSAKOW'S DISEASE		ACUTE HALUCINOSIS		CHRONIC HALUCINOSIS		PARANOID STATES		ALL OTHER TYPES	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Native.....	917	100	9	1.0	71	8.1	54	5.9	170	18.5	312	34.0	13	1.4	114	12.4	171	18.7
Foreign.....	848	100	3	0.4	60	7.3	27	3.3	155	18.9	326	39.9	26	3.2	124	15.1	97	11.9
Austria-Hungary.....	74	100	.....	.....	2	2.7	2	2.7	5	6.8	40	54.1	1	1.3	16	21.6	8	10.8
Canada.....	39	100	.....	.....	5	12.8	4	10.3	3	7.7	11	35.9	1	2.5	6	15.4	6	15.4
England and Wales.....	61	100	.....	.....	2	3.3	1	1.6	17	26.6	25	39.1	.....	.....	8	12.5	4	6.3
France.....	6	100	.....	.....	8	12.5	.....	.....	1	16.7	3	50.0	1	16.7	1	16.7	.....	.....
Germany.....	131	100	.....	.....	12	9.2	12	9.2	1	16.7	3	50.0	.....	.....	2	17.5	16	12.2
Ireland.....	336	100	1	0.3	25	7.4	4	1.2	20	15.3	45	31.4	2	1.5	43	14.6	43	12.8
Italy.....	38	100	.....	.....	2	5.3	.....	.....	91	27.1	110	32.7	13	3.9	6	15.8	4	10.5
Russia and Poland.....	47	100	.....	.....	3	6.4	2	4.3	1	2.1	24	63.2	1	2.6	4	8.5	6	12.8
Scandinavia.....	27	100	.....	.....	1	3.7	1	3.7	4	14.8	11	40.7	2	7.4	4	14.8	4	14.8
Scotland.....	27	100	.....	.....	1	3.7	.....	.....	8	29.6	10	37.0	.....	.....	6	22.2	2	7.4
All other countries.....	25	100	.....	.....	1	3.4	1	3.4	4	33.8	16	55.2	2	6.9	1	25.0	4	13.8
Unascertained.....	4	100	.....	.....	.....	.....	.....	.....	1	25.0	1	25.0	.....	.....	1	25.0	1	25.0
Total.....	1739	100	12	0.7	134	7.7	81	4.7	326	18.7	639	36.7	39	2.2	239	13.7	269	15.5

from Korsakow's disease. Of the men patients from Ireland only 21.2 per cent were afflicted with this disease. There were no female cases of pathological intoxication and but 9 female cases of delirium tremens.

Comparing the total native with the total foreign-born we find but slight differences in the percentages of the various types. There are relatively fewer cases of acute hallucinosis among the natives and relatively more cases of delirium tremens.

PARENTAGE OF PATIENTS WITH ALCOHOLIC PSYCHOSES.

(See Table 12, page 261.)

Table 12 shows the parentage of the alcoholic patients. The separate nationalities of the parents are not distinguished but the parentage is designated as native, foreign, mixed and unascertained. The term "mixed parentage" is used as in the Federal Census and includes those cases where one parent is native and the other is foreign-born or one parent unknown and the other native or foreign-born.

The totals appear in the following groups:

PARENTAGE OF PATIENTS WITH ALCOHOLIC PSYCHOSES.

PARENTAGE	NUMBER			PER CENT		
	Males	Females	Total	Males	Females	Total
Native	250	48	298	18.8	11.7	17.2
Foreign	933	333	1256	70.2	79.0	72.2
Mixed	119	24	143	8.9	5.9	8.2
Unascertained	28	14	42	2.1	3.4	2.4
Total	1330	409	1739	100.0	100.0	100.0

The patients with full native parentage number 298, or 17.2 per cent of the total. The males with native parentage constitute 18.8 per cent of the whole number, and the females with native parentage, 11.7 per cent.

Comparing these percentages of parentage with those for the population of the State at large we have:

COMPARISON OF PARENTAGE OF ALCOHOLIC PATIENTS WITH THAT
OF THE GENERAL POPULATION.

PARENTAGE	Alcoholic Patients	General Population
Native	17.2	*35.4
Foreign	72.2	*54.5
Mixed	8.2	*8.4
Unascertained	2.4	†1.7
Total.....	100.0	100.0

*Whites only.

†Negroes, Indians, etc.—Nativity of parents not given by United States Census.

The foreign stock is represented by much larger percentages in the alcoholic cases than in the population as a whole. If, however, only the population of 15 years of age and over is considered, the differences are somewhat lessened. Unfortunately, the foreign parentage and mixed parentage are combined in the age tables of the Federal Census.

COMPARISON OF PARENTAGE OF ALCOHOLIC PATIENTS WITH THAT
OF THE GENERAL WHITE POPULATION, 15 YEARS OF
AGE AND OVER.

PARENTAGE	ALCOHOLIC PATIENTS	GENERAL WHITE POPULATION 1910
Native.....	17.2	34.2
Foreign.....	72.2	65.8
Mixed.....	8.2	
Unascertained.....	2.4	
Total.....	100.0	100.0

The native born of native parents which constitute 34.2 per cent of the general white population 15 years of age and over, constitute but 17.2 per cent of the patients with alcoholic insanity. As the foreign-born average older than either the native-born of native parentage or the native-born of foreign parentage, and as the rate of insanity increases with advancing age, a disproportionate number of foreign-born alcoholic patients would be expected. The

more common use of strong drink by some classes of immigrants is also a factor of importance.

TIME IN HOSPITAL OF PATIENTS WITH ALCOHOLIC PSYCHOSES DISCHARGED AS RECOVERED.

(See Table 13, page 262.)

The time spent in the hospitals by the 704 patients discharged as recovered is given in Table 13. The results of the separate years are given as well as the total results. None of the patients had been in the hospital more than three years and some less than one month when the last cards were made out. The table, therefore, does not show the total recoveries that might be expected from the group studied.

A summary of the results of the three years is as follows:

TIME IN HOSPITAL OF PATIENTS WITH ALCOHOLIC PSYCHOSES DISCHARGED AS RECOVERED.

TIME	NUMBER			PER CENT OF TOTAL RECOVERED			PER CENT OF TOTAL PATIENTS		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
Under 1 month.....	94	11	105	16.0	9.3	14.9	7.1	2.7	6.0
1 month.....	142	28	170	24.2	23.7	24.1	10.7	6.8	9.8
2 months.....	115	16	131	19.6	13.6	18.6	8.6	3.9	7.5
3 months.....	73	17	90	12.6	14.4	12.8	5.5	4.2	5.2
4-5 months.....	78	11	89	13.3	9.3	12.6	5.9	2.7	5.1
6-9 months.....	53	22	75	9.0	18.7	10.7	4.0	5.4	4.3
10-12 months.....	17	9	26	2.9	7.6	3.7	1.3	2.2	1.5
1 year.....	14	3	17	2.4	2.6	2.4	1.1	0.7	1.0
2 years.....	.....	1	1	.....	0.8	0.2	.....	0.2	0.1
Total.....	586	118	704	100.0	100.0	100.0	44.1	28.9	40.5

We note that 586, or 44.1 per cent, of the males and 118, or 28.9 per cent of the females were discharged as recovered. The higher rate of recoveries among the males is partly due to the higher percentage of males in the recoverable types. It is also probable that the women patients when admitted are as a class deteriorated to a greater degree than the men.

Seven and one-tenths per cent of the males and 2.7 per cent of the females recovered within one month after admission; 10.7 per cent of the males and 6.8 per cent of the

females recovered within the period of 1 to 2 months and 8.6 per cent of the males and 3.9 per cent females recovered within the period 2 to 3 months. No less than 43.1 per cent of the males and 27.9 per cent of the females recovered before having been in the hospital one year. Those that recovered after a hospital residence of one year constituted but 1.1 per cent of the males and but 0.9 per cent of the females. In other words, 97.6 per cent of the males, and 96.6 per cent of the females that recovered were discharged within one year after admission. Thirty-nine per cent of all the recoveries occurred within two months of the time of admission. Reference to Table 1 will show that a total of 127 patients were discharged as improved. It is probable that in some of these cases at least improvement continued until the recovery was complete. In the discussion of the movement of patients as shown in Table 1 the recoveries occurring during each fiscal year were analyzed. Table 13, however, is of much greater value as it indicates within narrow limits the length of time each recovered patient spent in the hospital.

The recovery rate in each of the several types is of great interest. In view of the fact that so few of these patients recover after a hospital residence of one year, the results shown by the table may be taken as an indication of what is likely to happen anywhere under similar circumstances.

RATE OF RECOVERY OF PATIENTS WITH THE SEVERAL TYPES OF ALCOHOLIC INSANITY.

TYPE	TOTAL NUMBER OF CASES			RECOVERIES					
				NUMBER			PER CENT OF TOTAL OF EACH TYPE		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
Pathological intoxication	12	.....	12	11	.....	11	91.7	.....	91.7
Alcoholic deterioration..	100	34	134	7	1	8	7.0	2.9	6.0
Delirium tremens.....	52	9	61	47	4	51	65.8	44.4	63.0
Korsakow's disease.....	183	143	326	13	23	36	7.1	16.1	11.0
Acute hallucinosis.....	516	123	639	313	64	377	60.7	52.0	59.0
Chronic hallucinosis.....	30	9	39	3	2	5	10.0	22.2	12.8
Paranoid states.....	187	52	239	65	8	73	34.8	15.4	30.5
Other types.....	230	39	269	127	16	143	55.2	41.0	53.2
Total.....	1330	409	1739	586	118	704	44.1	28.9	40.5

As would be expected the highest rate of recovery is found in pathological intoxication and the lowest in alcoholic deterioration. Korsakow's disease and chronic hallucinosis also show very low rates of recovery. Of the male cases of delirium tremens, 65.3 per cent recovered and of the females, 44.4 per cent. Of the cases of acute hallucinosis, 60.7 per cent of the males and 52 per cent of the females recovered.

It is evident that in these types we have diseases of very different prognoses, varying from almost wholly recoverable to practically irrecoverable.

DEATHS OF PATIENTS WITH ALCOHOLIC PSYCHOSES.

(See Table 14, page 264.)

The number and causes of the deaths occurring among the patients under consideration are set forth in Table 14. The deaths of patients of the several types together with the death-rates appear in the following tabulation :

DEATHS AND DEATH-RATES OF PATIENTS WITH ALCOHOLIC PSYCHOSES.

TYPE	TOTAL CASES			DEATHS					
				NUMBER			PER CENT		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
Pathological intoxication.....	12	.....	12	.....	.....	.....	.....	.....	.....
Alcoholic deterioration..	100	34	134	10	6	16	10.0	17.6	11.9
Delirium tremens.....	72	9	81	10	1	11	13.9	11.1	13.6
Korsakow's disease.....	183	143	326	34	42	76	18.6	29.4	23.3
Acute hallucinosis.....	515	123	639	9	7	16	1.7	5.7	2.5
Chronic hallucinosis.....	30	9	39	.....	2	2	.....	22.2	5.1
Paranoid states.....	187	52	239	6	.....	6	3.2	.....	2.5
Other types.....	230	39	269	22	4	26	9.8	10.3	9.7
Total.....	1339	409	1739	91	62	153	6.8	15.2	8.8

Eight and eight-tenths per cent of the patients died during the period studied. As this three-year period is equivalent to a one and one-half-year period for the whole number of admissions, the annual death-rate per 1,000 patients would be 58.7. This is lower than the general annual death-rate

of insane patients in the State hospitals for the same period. In 1910, such rate was 68.3; in 1911, 75.2; in 1912, 68.6.

Among the insane in the State hospitals as a whole the death-rate of the male patients is higher than of the females. Among the alcoholic patients the reverse is the case, the annual death-rate of the males being 45.6 and of the females, 101.1. The difference is due principally to the high death-rate of female patients with Korsakow's disease, which was equivalent to an annual rate of 195.8 per thousand.

The male patients with acute hallucinosis show the remarkable low annual death-rate of 11.6 per thousand. There were no deaths among the 52 female patients with chronic hallucinosis.

The causes of death were distributed as follows:

CAUSES OF DEATH OF PATIENTS WITH ALCOHOLIC PSYCHOSES.

DISEASES	NUMBER OF DEATHS			PER CENT OF TOTAL DEATHS		
	Males	Females	Total	Males	Females	Total
General	22	11	33	24.2	17.7	21.6
Of nervous system.....	19	15	34	20.9	24.2	22.2
Of circulatory system.....	18	13	31	19.8	21.0	20.3
Of respiratory system.....	22	15	37	24.2	24.2	24.2
Of digestive system.....	4	2	6	4.4	3.2	3.9
Of genito-urinary system.....	1	5	6	1.1	8.1	3.9
Violence	5	1	6	5.5	1.6	3.9
Total	91	62	153	100.0	100.0	100.0

General diseases, and diseases of the nervous system, circulatory system and respiratory system are responsible for nearly 88.3 per cent of the deaths. Diseases of the digestive system caused but 3.9 per cent of the total deaths. Diseases of the genito-urinary system caused an equal proportion of total deaths, but the percentage of deaths of males from these diseases was only 1.1 while that of the females was 8.1. Five, or 5.5 per cent, of the males who died committed suicide, and one female patient died from heat prostration.

The separate diseases causing 5 per cent or more of the total deaths are given in the subjoined tabulation :

PRINCIPAL DISEASES CAUSING DEATHS OF ALCOHOLIC PATIENTS.

	NUMBER			PER CENT OF TOTAL DEATHS		
	Males	Females	Total	Males	Females	Total
Tuberculosis of lungs.....	19	9	28	29.9	14.5	18.3
Exhaustion from mental disease.....	17	9	26	18.7	14.5	17.0
Organic disease of the heart.....	11	3	14	12.1	4.8	9.2
Bronchopneumonia.....	11	14	25	12.1	22.6	16.3
Lobar pneumonia.....	10	1	11	11.0	1.6	7.2

The five diseases here named caused 68 per cent of the total deaths of the alcoholic patients.

Referring to the separate types we note that 3 of the patients with alcoholic deterioration died of pulmonary tuberculosis ; 2, of endocarditis ; and 2, of arteriosclerosis. No other disease caused more than 1 death in this type.

Of the 11 deaths of patients with delirium tremens, 6 were caused by exhaustion from mental disease ; 2, by organic disease of the heart ; and 3, by bronchopneumonia.

Of the 76 deaths of patients with Korsakow's disease, 17 were caused by pulmonary tuberculosis ; 13, by exhaustion from mental disease ; 5, by neuritis ; 4, by endocarditis ; 15, by bronchopneumonia ; and 4, by nephritis.

PERIOD OF HOSPITAL RESIDENCE OF PATIENTS WHO
DIED IN THE HOSPITALS.

(See Table 15, page 266.)

The time spent in the hospitals prior to death by the 153 patients who died in the hospitals is given in Table 15. A summary of the table with percentages of total deaths and of the total patients is given on page 238.

It is noteworthy that 36.6 per cent of the total number of deaths occurred within 15 days, and 62.7 per cent, within two months after admission. It is evident that these patients were in a critical condition when admitted. All

TIME SPENT IN HOSPITALS BY ALCOHOLIC PATIENTS WHO DIED
IN THE HOSPITAL.

TIME	DEATHS			PER CENT OF TOTAL DEATHS			PER CENT OF TOTAL PATIENTS		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
Less than 15 days.....	36	20	56	39.5	32.3	36.6	2.7	4.9	3.2
15 days to 1 month.....	7	14	21	7.7	22.6	13.7	0.5	3.4	1.2
1 month.....	9	10	19	9.9	16.1	12.4	0.7	2.4	1.1
2 months.....	7	2	9	7.7	3.2	5.9	0.5	0.5	0.5
3 months.....	7	2	10	8.8	3.2	6.5	0.6	0.5	0.6
4-5 months.....	4	5	9	4.4	8.1	5.9	0.3	1.2	0.5
6-8 months.....	2	3	11	8.8	4.8	7.2	0.6	0.7	0.6
9-11 months.....	3	3	6	3.3	4.8	3.9	0.2	0.7	0.3
1 year.....	9	3	12	9.9	4.8	7.8	0.7	0.7	0.7
Total.....	91	62	153	100.0	100.0	100.0	6.8	15.2	8.8

of the deaths of patients with delirium tremens occurred within 15 days after admission. In the other types the deaths are scattered through the various time groups.

AGE AT DEATH OF ALCOHOLIC PATIENTS.

(See Table 16, page 268.)

Table 16 classifies the alcoholic patients who died in the hospitals according to age and type of mental disease.

The patients are distributed among the following age groups:

AGE GROUP	PATIENTS WHO DIED IN HOSPITAL					
	NUMBER			PER CENT		
	Males	Females	Total	Males	Females	Total
20-24 years.....	1	.....	1	1.1	.....	0.7
25-29 years.....	3	2	5	3.3	3.2	3.3
30-34 years.....	3	12	15	3.3	19.4	9.8
35-39 years.....	7	6	14	8.8	9.7	9.2
40-44 years.....	13	17	30	14.3	27.4	19.6
45-49 years.....	18	6	24	19.8	9.7	15.6
50-54 years.....	19	10	29	20.9	16.1	19.0
55-59 years.....	14	3	17	15.4	4.8	11.1
60-64 years.....	9	3	12	9.9	4.8	7.8
65-69 years.....	2	3	5	2.2	4.8	3.3
70-74 years.....	1	.....	1	1.1	.....	0.7
Total.....	91	62	153	100.0	100.0	100.0

Only 18 of the 153 patients had reached the age of 60 years at the time of death, and 65, or 42.6 per cent, had not reached the age of 45 years. The average age at death was approximately 47 years. As the average age at admission was about 42 years, the death-rate was evidently higher among the older patients, a result that would be expected under normal conditions.

At the close of the fiscal year of 1912, when the cards on which this study was based were completed, there remained in the hospitals, 450, or 33.8 per cent, of the males; 187, or 45.7 per cent, of the females. Many of those admitted in the latter part of 1912 and some of those admitted late in 1911 will recover, but it is probable that few if any of the 165 cases remaining of the admissions of 1911 will recover. These consist mainly of deteriorated and chronic cases that will remain in the hospitals until death. This residue constitutes 25.9 per cent of the male admissions, 36.6 per cent of the female admissions and 28.3 per cent of the total admissions of that year.

CONCLUSIONS.

The following conclusions seem to apply to conditions in New York State at the present time :

1. Cases of alcoholic insanity constitute approximately 15 per cent of the male first admissions, 5 per cent of the female first admissions, and 10 per cent of the total first admissions to the New York State hospitals for the insane. The sex distribution of the alcoholic patients is influenced by environment, since few females are admitted from rural districts.
2. Acute hallucinosis is the most frequent type of alcoholic insanity among males, and Korsakow's disease, the most frequent among females, the percentages of the totals being 38.8 and 35.0 respectively.
3. The onset of alcoholic insanity occurs principally in middle life, the average age at admission being approximately 42 years.
4. Approximately 89 per cent of the alcoholic cases are

rated as normal persons; 10 per cent as inferior, and less than 1 per cent as defective.

5. The alcoholic cases represent a fair average in intellectual capacity.

6. One-half of the alcoholic cases are free from ascertainable physical disease at the time of admission.

7. Diseases of the circulatory system appear in 19 per cent of the men and 15 per cent of the women.

8. The rate of alcoholic insanity among the colored population is approximately twice that among the white population of New York State. The rate may be affected by the age distribution but the numbers in each age group are too small for correction on this basis.

9. More than half of the alcoholic cases among the colored are acute hallucinoses, whereas the proportion among the whites is about three-eighths.

10. The percentage of married males among alcoholic cases is less than among the general population 15 years of age and over. Among females, the reverse condition obtains.

11. There is a large percentage of widowed, divorced, and separated among alcoholic cases.

12. Approximately 26 per cent of ascertained alcoholic cases have a family history of insanity; 44 per cent have a family history of alcoholism and 6 per cent a history of nervous diseases other than insanity.

13. Nearly one-third of the alcoholic cases have alcoholic fathers. The percentage of males with alcoholic fathers is 30.5 and of females, 37. Intemperance on the part of the father seems to be a factor in the causation of alcoholic insanity.

14. Alcoholic patients rank but little lower in literacy than the general population and considerably higher than patients with other psychoses.

15. Only 5 per cent of the male, and 1 per cent of the female alcoholic cases come from rural districts.

16. Manual and intermittent pursuits predominate among alcoholic patients. There is no apparent relation between occupation and type of alcoholic insanity.

17. The rate of alcoholic insanity is more than twice as great among the foreign-born as among the native-born. The rate is affected by the age distribution.

18. Nationalities that use whiskey freely have a higher rate of alcoholic insanity than those that use beer or wine.

19. More than 80 per cent of the alcoholic first admissions to the State hospitals are of foreign or mixed parentage, compared with 72 per cent of all first admissions.

20. Of 100 male first admissions with alcoholic insanity 43 may be expected to recover within one year from the time of admission, and only 1 additional patient will recover the second year. Six of the 100 patients will die the first hospital year, and 1 the second year.

21. Of 100 female first admissions with alcoholic insanity, 28 may be expected to recover within one year after admission, and 1 the second year. Fifteen will die the first hospital year and 1 the second year.

22. Alcoholic patients have a lower death-rate than insane patients as a whole.

23. The principal diseases causing death among alcoholic patients are tuberculosis of the lungs, organic disease of the heart, bronchopneumonia and lobar pneumonia.

24. The average age of alcoholic patients at death is 47 years.

TABLE 1. ANNUAL MOVEMENT OF FIRST ADMISSIONS WITH ALCOHOLIC PSYCHOSES
OCTOBER 1, 1909 TO SEPTEMBER 30, 1912.

	TOTALS										PATHOLOGICAL INTOXICATION			
	1910		1911		1912		1910		1911		1912		1912	
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females
First admissions of 1910.....	452	131	583	212	84	296	135	52	187	4	.....	.....	.....	.....
Discharged:														
As recovered.....	158	26	184	67	11	78	10	2	12	4	.....	.....	.....	.....
As improved.....	18	2	20	25	10	35	6	2	8	.....	.....	.....	.....	.....
For deportation or repatriation.....	19	1	20	7	1	8	4	.....	4	.....	.....	.....	.....	.....
As unimproved.....	1	.....	1	1	1	2	.....	.....	.....	.....	.....	.....	.....	.....
Died.....	20	18	38	15	10	25	3	.....	3	.....	.....	.....	.....	.....
Readmitted.....	6	.....	6	8	1	9	5	.....	5	.....	.....	.....	.....	.....
Remaining in hospital, September 30.....	242	84	326	135	52	187	117	48	165	1	.....	.....	.....	.....
First admissions of 1911.....	.....	.....	.....	444	147	591	227	94	321	.....	.....	.....	.....	.....
Discharged:														
As recovered.....	.....	.....	.....	156	32	188	63	27	90	.....	.....	.....	.....	.....
As improved.....	.....	.....	.....	11	3	14	21	8	29	.....	.....	.....	.....	.....
For deportation or repatriation.....	.....	.....	.....	32	3	35	17	1	18	.....	.....	.....	.....	.....
As unimproved.....	.....	.....	.....	1	1	2	3	.....	3	.....	.....	.....	.....	.....
Died.....	.....	.....	.....	20	14	34	8	5	13	.....	.....	.....	.....	.....
Readmitted.....	.....	.....	.....	3	.....	3	13	2	15	.....	.....	.....	.....	.....
Remaining in hospital, September 30.....	.....	.....	.....	227	94	321	128	55	183	.....	.....	.....	.....	.....
First admissions of 1912.....	.....	.....	.....	.....	.....	.....	434	131	565	.....	.....	.....	.....	.....
Discharged:														
As recovered.....	.....	.....	.....	.....	.....	.....	151	22	173	.....	.....	.....	.....	.....
As improved.....	.....	.....	.....	16	5	21	5	.....	16	.....	.....	.....	.....	.....
For deportation or repatriation.....	.....	.....	.....	36	5	41	36	5	41	.....	.....	.....	.....	.....
As unimproved.....	.....	.....	.....	7	.....	7	7	.....	7	.....	.....	.....	.....	.....
Died.....	.....	.....	.....	.....	.....	.....	25	15	40	.....	.....	.....	.....	.....
Readmitted.....	.....	.....	.....	.....	.....	.....	6	.....	6	.....	.....	.....	.....	.....
Remaining in hospital, September 30.....	.....	.....	.....	.....	.....	.....	205	84	289	.....	.....	.....	.....	.....

TABLE 1. ANNUAL MOVEMENT OF FIRST ADMISSIONS WITH ALCOHOLIC PSYCHOSES--(Continued)

	ACUTE HALLUCINOSIS						CHRONIC HALLUCINOSIS						PARANOID STATES					
	1910			1911			1910			1911			1910			1911		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
First admissions of 1910.....	161	38	199	78	22	100	43	14	57	5	14	19	77	23	100	49	17	66
Discharged:																		
As recovered.....	72	12	84	40	3	43	6	1	7	2	2	4	21	5	26	10	1	11
As improved.....	2	1	3	4	3	7	1	1	2	1	1	2	6	1	7	9	1	10
For deportation or repatriation.....	11	1	12	6	1	7	1	1	2	1	2	3	2	1	3	1	1	2
As unimproved.....																		
Died.....	2	3	5	2	2	4	2	2	4	1	1	2	1	1	2	3	2	5
Readmitted.....	4	3	7	3	3	6	2	2	4	1	1	2	1	1	2	2	1	3
Remaining in hospital, Sept. 30.....	78	22	100	29	14	43	23	13	36	5	10	15	49	17	66	27	14	41
First admissions of 1911.....				190	50	240	73	29	102	9	2	11	8	2	10	53	10	63
Discharged:																		
As recovered.....				96	20	116	35	14	49							10	1	11
As improved.....				1	1	2	1	1	2	1	1	2	1	1	2	4	5	9
For deportation or repatriation.....				22	8	30	8	1	9	1	2	3	2	2	4	2	1	3
As unimproved.....																1	1	2
Died.....				1	1	2	1	1	2	1	1	2	1	1	2	2	1	3
Readmitted.....				3	3	6	1	1	2	1	1	2	1	1	2	3	3	6
Remaining in hospital, Sept. 30.....				73	29	102	27	12	39	8	2	10	5	1	6	36	7	43
First admissions of 1912.....							105	35	140									
Discharged:																		
As recovered.....							75	15	90							16	1	17
As improved.....							4	4	8							3	2	5
For deportation or repatriation.....							23	4	27							4	4	8
As unimproved.....																1	1	2
Died.....							4	4	8							1	1	2
Readmitted.....							1	1	2							1	1	2
Remaining in hospital, Sept. 30.....							60	16	76				9	2	11	33	16	49

TABLE 2. AGE AT TIME OF ADMISSION OF PATIENTS WITH ALCOHOLIC PSYCHOSES.
FIRST ADMISSIONS OF 1910, 1911 AND 1912.

AGE GROUPS	TOTAL			PATHO- LOGICAL INTOXICA- TION			ALCO- HOLIC DETERIO- RATION			DELIRIUM TREMENS			KORSA- KOW'S DISEASE			ACUTE HALLU- CINOSIS			CHRONIC HALLU- CINOSIS			PARANOID STATES			ALL OTHER TYPES		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
Under 20 years.....	26	3	29	2	1	3	2	2	4	2	2	4	2	2	4	19	1	20	4	2	6	2	2	4	3	2	5
20-24 years.....	110	25	135	2	9	11	9	1	10	10	1	11	1	4	5	64	15	79	4	4	8	2	15	3	18	13	31
25-29 years.....	186	53	239	5	2	7	8	1	9	7	1	8	9	16	25	99	22	121	4	2	6	4	15	3	18	13	31
30-34 years.....	253	82	335	3	5	8	15	5	20	17	19	36	23	40	63	111	28	139	4	4	8	4	21	7	28	16	44
35-39 years.....	214	77	291	3	3	6	10	5	15	9	11	20	35	46	81	51	20	71	1	1	2	10	27	4	31	40	71
40-44 years.....	174	63	237	1	3	4	11	6	17	12	14	26	33	47	80	57	17	74	5	3	8	5	30	11	41	25	66
45-49 years.....	145	43	188	1	1	2	19	6	25	7	8	15	34	18	52	39	6	45	3	3	6	2	13	8	31	23	54
50-54 years.....	107	27	134	1	1	2	17	7	24	7	7	14	24	7	31	21	6	27	2	2	4	2	13	8	31	23	54
55-59 years.....	66	17	83	1	1	2	12	2	14	2	1	3	21	4	25	9	5	14	1	3	4	1	8	1	9	13	22
60-64 years.....	29	7	36	1	1	2	5	1	6	1	1	2	3	3	6	8	1	9	1	1	2	1	1	1	2	10	11
65-69 years.....	13	2	15	1	1	2	1	1	2	1	1	2	1	1	2	4	1	5	1	1	2	2	2	2	6	1	7
70-74 years.....	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	1	1	1	2
75-79 years.....	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	1	1	1	2
80 years and over.....	5	3	8	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	1	1	1	2
Unascertained.....	1330	409	1739	12	12	24	100	34	134	72	9	81	183	143	326	516	123	639	30	9	39	187	52	239	230	39	269
Total.....	1330	409	1739	12	12	24	100	34	134	72	9	81	183	143	326	516	123	639	30	9	39	187	52	239	230	39	269

TABLE 3. CONSTITUTIONAL MAKE-UP OF FIRST ADMISSIONS WITH ALCOHOLIC PSYCHOSES
FIRST ADMISSIONS OF 1910, 1911, 1912.

	TOTAL			PATHOLOGICAL INTOXICATION			ALCOHOLIC DETERIORATION			DELIRIUM TREMENS			KORSAKOW'S DISEASE			ACUTE HALLUCINOSIS			CHRONIC HALLUCINOSIS			PARANOID STATES			ALL OTHER TYPES			
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	
Defective.....	6		6																									
Inferior.....	138	39	167	2		2	14	5	19	5		5	5	5	10	63	15	78	1		1	4	11	10	21	21	4	25
Normal.....	1118	336	1454	10		10	81	26	107	65	8	73	158	121	279	425	103	528	24	9	33	161	36	200	191	33	224	
Uncertain.....	78	34	112				5	3	8	2	1	3	20	17	37	26	5	31	2		2	7	6	13	16	2	18	
Total.....	1330	409	1739	12		12	100	34	134	72	9	81	183	143	326	516	123	639	30	9	39	187	52	239	230	39	269	

TABLE 4. PHYSICAL DISEASES ACCOMPANYING THE VARIOUS TYPES OF ALCOHOLIC PSYCHOSES.
FIRST ADMISSIONS OF 1910, 1911, 1912

	TOTAL			PATHO- LOGICAL INTOXI- CATION			ALCO- HOLIC DETERIO- RATION			DELIRIUM TREMENS			KORSA- KOW'S DISEASE			ACUTE HALLU- CINOSIS			CHRONIC HALLU- CINOSIS			PARANOID STATES			ALL OTHER TYPES		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
TOTAL CASES.....	1330	409	1739	12	12	24	100	34	134	72	9	81	183	143	326	516	123	639	30	9	39	187	52	239	230	39	263
General Diseases.....	81	40	121	1	1	2	6	1	7	4	4	8	15	18	33	27	12	39	1	1	2	8	2	10	19	7	26
Pulmonary tuberculosis.....	34	13	47	...	...	...	4	1	5	2	2	4	12	5	17	7	5	12	1	...	...	3	...	3	5	2	7
Tuberculosis of other organs.....	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Syphilis.....	19	6	25	1	1	2	1	...	1	1	1	1	1	1	2	10	3	13	...	...	...	3	1	4	2	1	3
Gonorrhea.....	4	4	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rheumatism.....	6	1	7	...	...	...	1	...	1	1	1	1	1	1	...	3	1	4	...	...	...	...	...	...	...	...	...
Diabetes.....	2	2	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Anemia.....	11	17	28	...	...	...	...	...	...	...	...	...	1	10	11	3	2	5	...	...	...	1	1	2	6	4	10
Tumors.....	4	4	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cancer of face.....	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Toxæmia.....	2	2	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other general diseases.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diseases of nervous system.....	145	132	277	...	...	...	11	2	13	6	1	7	95	112	207	9	9	18	...	...	...	4	3	7	20	3	23
Neuritis.....	110	124	234	...	...	...	3	1	4	2	1	3	93	111	204	2	8	10	...	...	...	1	1	...	1	9	2
Locomotor ataxia.....	4	4	8	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	3	3	...
Epilepsy.....	1	3	4	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Meningitis.....	3	3	6	...	...	...	1	...	1	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other diseases of nervous system.....	27	5	32	...	...	...	7	...	7	2	...	2	2	1	3	6	1	7	...	...	...	1	3	1	4	7	1
Diseases of circulatory system.....	254	61	315	2	2	4	31	12	43	13	...	13	38	17	55	82	14	96	5	2	7	38	10	48	45	6	51
Myocarditis.....	7	4	11	...	...	...	...	1	1	...	...	4	3	7	2	2	...	...	...	...	...	...	...	...	1	...	...
Endocarditis.....	19	13	32	...	...	...	3	2	5	1	...	1	5	5	10	6	2	8	...	...	...	1	3	4	3	1	4
Organic disease of heart.....	74	18	92	2	2	4	23	5	28	5	...	5	5	5	1	6	31	7	38	2	...	2	13	2	15	11	4
Arteriosclerosis.....	136	23	159	...	...	...	23	5	28	3	...	3	22	7	29	35	4	39	2	2	4	22	4	26	23	1	30
Angina pectoris.....	1	1	2	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other diseases of the circulatory system.....	17	3	20	...	...	...	...	...	...	3	...	3	2	1	3	8	1	9	1	...	1	2	1	3	1	...	1

Diseases of respiratory system.....	28	12	40	.....	.....	6	.....	6	3	1	4	4	10	14	4	1	5	1	.....	1	1	.....	1	9	.....	9
Bronchitis.....	11	5	16	.....	.....	1	.....	.....	1	2	2	4	5	9	1	.....	1	1	.....	1	1	.....	1	2	.....	2
Asthma.....	2	2	4	.....	.....	.....	.....	.....	.....	1	1	1	.....	.....	.....	1	1	1	.....	.....	.....	.....	1	1	.....	1
Pneumonia.....	4	4	8	.....	.....	.....	.....	.....	1	.....	1	.....	4	4	2	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Other diseases of respiratory system.....	11	1	12	.....	.....	5	.....	.....	5	.....	.....	1	1	1	1	.....	1	.....	.....	.....	.....	.....	5	.....	5	
Diseases of digestive system.....	75	35	110	.....	.....	4	7	11	1	1	2	18	13	31	27	5	32	1	1	2	7	3	10	17	5	22
Gastritis.....	17	5	22	.....	.....	.....	.....	.....	1	.....	1	3	1	4	12	1	13	.....	.....	.....	.....	1	1	2	1	3
Diarrhea and enteritis.....	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	9	.....	9	3	1	4	.....	.....	.....	2	.....	2	8	1	9
Hernia.....	24	4	28	.....	.....	2	2	4	.....	.....	1	5	2	7	9	.....	9	1	1	2	4	.....	4	5	.....	5
Cirrhosis of liver.....	25	5	30	.....	.....	.....	2	2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Other diseases of digestive system.....	9	20	29	.....	.....	2	3	5	.....	.....	.....	1	9	10	3	3	6	.....	.....	.....	1	2	3	2	3	5
Diseases of genito-urinary system.....	68	26	94	.....	.....	7	3	10	3	1	4	9	7	16	17	5	22	.....	1	1	8	2	10	24	7	31
Nephritis.....	29	19	48	.....	.....	4	1	5	2	1	3	6	6	12	6	4	10	.....	.....	.....	3	1	4	8	6	14
Bright's disease.....	7	.....	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	7	.....	7
Diseases of bladder.....	4	.....	4	.....	.....	3	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Other diseases of genito-urinary system.....	28	7	35	.....	.....	.....	2	2	1	.....	1	3	1	4	10	1	11	.....	1	1	5	1	6	9	1	10
Diseases of skin, special senses, amputations, fractures, general debility, etc....	81	23	104	.....	.....	10	2	12	10	1	11	5	4	9	25	10	35	.....	.....	.....	8	1	9	23	5	28
No physical disease.....	698	169	867	8	8	43	16	59	36	3	39	32	18	50	342	80	432	21	4	25	114	33	147	102	15	117
Unascertained.....	79	13	92	1	1	3	1	4	5	2	7	15	4	19	31	2	33	1	1	14	2	16	9	2	11

TABLE 5. COLOR OF PATIENTS WITH ALCOHOLIC PSYCHOSES. FIRST ADMISSIONS OF 1910, 1911, 1912.

	TOTAL			PATHOLOGICAL INTOXICATION			ALCOHOLIC DETERIORATION			DELIRIUM TREMENS			KORSAKOW'S DISEASE			ACUTE HALLUCINOSIS			CHRONIC HALLUCINOSIS			PARANOID STATES			ALL OTHER TYPES		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
White ..	1292	307	1689	11	....	11	99	34	138	70	9	79	181	142	323	495	117	612	30	9	39	183	51	234	233	85	258
Black.....	36	12	48	1	....	1	1	....	1	2	....	2	2	1	3	20	6	26	....	....	....	4	1	5	6	4	10
Yellow	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	....	....	....	....	....	....	....
Red	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....
Total	1330	409	1739	12	....	12	100	84	134	72	9	81	183	143	326	516	123	639	30	9	39	187	52	239	230	39	269

TABLE 6. MARITAL CONDITION OF PATIENTS WITH ALCOHOLIC PSYCHOSES. FIRST ADMISSIONS OF 1910, 1911, 1912.

	TOTAL			PATHOLOGICAL INTOXICATION			ALCOHOLIC DETERIORATION			DELIRIUM TREMENS			KORSAKOW'S DISEASE			ACUTE HALLUCINOSIS			CHRONIC HALLUCINOSIS			PARANOID STATES			ALL OTHER TYPES		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
Single	531	54	585	4	4	8	42	4	46	46	3	49	53	11	64	253	22	275	13	2	15	67	9	76	77	8	85
Married	565	231	796	4	4	8	60	16	76	33	4	37	75	86	161	197	63	260	11	3	14	98	34	132	103	25	128
Widowed	132	80	212	.....	.....	.....	18	9	27	6	1	7	35	33	68	37	21	58	4	4	8	10	4	14	31	8	39
Divorced	15	9	24	.....	.....	.....	.....	.....	.....	2	.....	2	4	2	6	4	4	8	.....	.....	.....	.....	.....	1	1	2	3
Separated	78	31	109	8	3	11	12	5	17	1	1	2	14	7	21	22	13	35	1	.....	1	12	4	16	14	1	15
Unascertained	8	4	12	.....	.....	.....	2	.....	.....	.....	.....	.....	2	4	6	3	.....	3	1	.....	1	.....	.....	.....	.....	.....	.....
Total	1340	409	1749	12	.....	.....	72	9	81	72	9	81	133	143	276	516	123	639	30	9	39	187	52	239	240	39	279

TABLE 7. FAMILY HISTORY OF PATIENTS WITH ALCOHOLIC PSYCHOSES. FIRST ADMISSIONS OF 1910, 1911, 1912.

	TOTAL		PATHO- LOGICAL INTOXI- CATION		ALCO- HOLIC DETETIO- RATION		DELIRIUM TREMENS		KORSA- KOW'S DISEASE		ACUTE HALLU- CINOSIS		CHRONIC HALLU- CINOSIS		PARANOID STATES		ALL OTHER TYPES							
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females						
TOTAL CASES.....	1330	409	1739	12	....	12	....	72	9	81	183	143	326	516	123	689	30	9	39	239	230	39	269	
Family history of insanity																								
Father.....	37	11	48	1	....	1	....	1	2	3	....	2	2	19	1	20	....	2	2	6	....	6	2	3
Mother.....	34	18	52	2	....	2	....	4	4	4	1	5	6	15	6	21	....	....	....	3	4	7	1	8
Children.....	4	1	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Brothers or sisters.....	84	28	112	....	....	5	10	4	3	7	8	5	13	36	12	48	....	....	....	15	3	18	16	16
Paternal grand-parents.....	11	6	17	....	....	1	2	3	1	....	2	2	4	1	....	....	....	....	....	1	....	1	4	1
Maternal grand-parents.....	19	2	21	....	....	1	....	....	....	....	1	1	7	1	8	....	....	....	....	4	....	4	7	5
Uncles, aunts or cousins.....	126	31	157	....	....	11	4	15	10	1	6	8	14	43	10	53	6	....	....	6	16	5	21	34
No history of insanity.....	748	216	964	10	....	55	15	70	42	4	46	93	83	179	68	377	15	5	20	100	19	119	121	22
Unascertained.....	323	116	439	....	....	23	9	32	11	2	13	39	113	111	30	141	9	2	11	51	22	73	44	12
Family history of alcoholism																								
Father.....	310	101	411	7	....	7	....	27	4	31	24	30	54	128	34	162	9	4	13	37	10	47	58	11
Mother.....	30	24	54	....	....	1	3	4	7	7	1	4	5	12	9	21	....	....	....	4	6	10	5	2
Children.....	1	2	3	....	....	....	....	....	....	1	....	1	1	....	....	....	....	....	....	....	....	....	....	....
Brothers or sisters.....	133	53	186	3	....	3	6	5	11	13	11	12	23	58	21	79	2	2	4	17	10	27	24	2
Paternal grand-parents.....	7	1	8	....	....	1	....	....	....	....	1	1	1	5	....	....	....	....	....	....	....	....	....	....
Maternal grand-parents.....	9	1	10	....	....	1	....	....	....	....	1	....	....	5	....	....	....	....	....	....	....	....	....	....
Uncles, aunts or cousins.....	68	9	77	1	....	1	3	....	....	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....
No history of alcoholism.....	593	134	727	4	....	4	52	10	26	3	29	74	53	137	244	44	288	11	11	76	12	88	106	12
Unascertained.....	315	136	451	2	....	2	23	15	8	1	10	74	52	136	100	32	132	10	4	14	53	20	73	44

TABLE 7. FAMILY HISTORY OF PATIENTS WITH ALCOHOLIC PSYCHOSES. FIRST ADMISSIONS OF 1910, 1911, 1912.—(Continued.)

	TOTAL			PATHOLOGICAL INTOXICATION			ALCOHOLIC DETERIORATION			DELIRIUM TREMENS			KORSAKOW'S DISEASE			ACUTE HALLUCINOSIS			CHRONIC HALLUCINOSIS			PARANOID STATES			ALL OTHER TYPES		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total			
Family history of nervous diseases (other than insanity) including hysteria, neurasthenia, epilepsy locomotor ataxia, chorea, and motor ties.																											
Father.....	11	1	12																								
Mother.....	9	10	19																								
Children.....	2																										
Brothers or sister.....	18	11	29																								
Paternal grand-parents.....	2																										
Maternal grand-parents.....	3																										
Uncles, aunts or consins.....	11	2	16																								
No history of nervous diseases.....	948	270	1218	9	9	18	9	71	33	94	60	6	66	103	92	195	985	90	475	120	38	157	171	325			
Unascertained.....	327	117	444	3	3	6	11	23	9	32	11	2	13	74	43	117	139	28	139	9	11	51	46	97			

TABLE 8. LITERACY OF PATIENTS WITH ALCOHOLIC PSYCHOSES.
FIRST ADMISSIONS OF 1910, 1911, 1912.

	TOTAL			PATHO- LOGICAL INTOXICA- TION			ALCO- HOLIC DETERIO- RATION			DELIRIUM TREMENS			KORSA- KOW'S DISEASE			ACUTE HALLU- CINOSIS			CHRONIC HALLU- CINOSIS			PARANOID STATES			ALL OTHER TYPES		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
None.....	81	29	110	.....	.....	.....	5	1	6	3	8	18	39	7	46	1	1	2	9	6	15	16	4	20
Reads and writes.....	253	102	355	.....	.....	.....	10	10	20	11	33	44	67	99	128	20	20	40	22	15	37	46	12	58
Common school.....	913	213	1126	.....	.....	.....	51	19	70	50	131	91	222	342	480	9	9	18	145	27	172	156	32	178
High school.....	53	13	66	.....	.....	.....	2	3	5	5	5	4	9	23	25	2	2	4	9	3	12	8	1	9
Collegiate.....	1	1	2	1	2	
Unascertained.....	16	11	27	2	1	3	2	4	4	6	7	10	
Total.....	1430	499	1929	100	34	134	72	9	81	143	326	639	516	133	639	30	9	39	187	52	239	230	39	269

TABLE 9. ENVIRONMENT OF PATIENTS WITH ALCOHOLIC PSYCHOSES.
FIRST ADMISSIONS OF 1910, 1911, 1912.

	TOTAL			PATHO-LOGICAL INTOXICATION			ALCOHOLIC DETERIORATION			DELIRIUM TREMENS			KORSAKOW'S DISEASE			ACUTE HALLUCINOSIS			CHRONIC HALLUCINOSIS			PARANOID STATES			ALL OTHER TYPES		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
City	1078	382	1460	10	....	10	76	29	105	57	8	65	157	135	292	427	114	541	26	9	35	103	49	152	162	38	200
Village.....	168	18	186	2	....	2	15	3	18	10	1	11	19	4	23	61	6	67	3	....	3	17	3	20	41	1	42
Rural.....	69	4	73	....	....	....	7	2	9	5	....	5	4	....	4	23	2	25	1	....	1	7	....	7	22	....	22
Unascertained.....	15	5	20	....	....	....	2	....	2	....	....	....	3	4	7	5	1	6	....	....	....	....	....	....	5	....	5
Total.....	1330	409	1739	12	....	12	100	34	134	72	9	81	183	143	326	516	123	639	30	9	39	187	52	239	230	39	269

TABLE 11. NATIVITY OF PATIENTS WITH ALCOHOLIC PSYCHOSES.
FIRST ADMISSIONS OF 1910, 1911 AND 1912.

NATIVITY	TOTAL			PATHO- LOGICAL INTOXI- CATION			ALCO- HOLIC DETERIO- RATION			DELIRIUM TREMENS			KORSA- KOW'S DISEASE			ACUTE HALLU- CINOSIS			CHRONIC HALLU- CINOSIS			PARANOID STATES			ALL OTHER TYPES		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
Native.....	722	195	917	9	...	9	57	17	74	50	4	54	99	71	170	255	57	312	10	8	13	90	24	114	152	19	171
Total foreign born.....	695	213	908	3	...	3	43	17	60	22	5	27	84	71	155	260	66	326	20	6	26	96	28	134	77	20	97
Austria-Hungary.....	59	15	74	...	...	...	2	2	2	...	...	2	2	3	5	33	7	40	1	...	1	11	5	16	8	...	8
Canada.....	29	10	39	...	...	...	4	1	5	3	1	4	1	2	3	11	3	14	1	...	1	5	1	6	4	2	6
England and Wales.....	40	24	64	1	...	1	5	3	8	...	...	1	7	10	17	18	7	25	...	...	...	5	3	8	4	...	4
France.....	6	...	6	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	1	...	...	...	...	...
Germany.....	112	19	131	1	...	1	8	4	12	11	1	12	16	4	20	40	5	45	1	1	2	22	1	23	13	3	16
Ireland.....	217	119	336	1	...	1	18	7	25	4	...	4	46	45	91	74	36	110	8	5	13	85	14	49	81	12	43
Italy.....	37	1	38	...	...	...	2	...	2	...	...	...	1	...	1	24	...	24	1	...	...	5	1	6	4	...	4
Russia and Poland.....	43	4	47	...	...	...	2	1	3	2	...	2	1	...	1	26	2	28	3	...	3	4	...	4	5	1	6
Scandinavia.....	23	4	27	...	...	...	1	1	2	...	1	1	3	1	4	10	1	11	2	...	2	4	...	4	3	1	4
Scotland.....	19	8	27	...	...	...	1	...	1	...	...	...	5	3	8	7	3	10	...	...	...	4	2	6	2	...	2
All other countries.....	20	9	29	...	...	...	1	1	1	1	...	1	1	3	4	14	2	16	2	...	2	...	1	1	3	1	4
Nativity unascertained.....	3	1	4	...	...	...	...	...	...	...	...	...	1	1	1	1	...	1	...	...	...	...	...	1	...	...	1
Total.....	1330	409	1739	12	...	12	100	34	134	72	9	81	183	143	326	516	123	639	30	9	39	187	52	239	230	39	269

TABLE 12. PERCENTAGE OF PATIENTS WITH ALCOHOLIC PSYCHOSES.
FIRST ADMISSIONS OF 1910, 1911, 1912.

	TOTAL			PATHO-LOGICAL INTOXI-CATION			ALCO-HOLIC DETERIO-RATION			DELIRIUM TREMENS			KORSA-KOW'S DISEASE			ACUTE HALLU-CINOSIS			CHRONIC HALLU-CINOSIS			PARANOID STATES			ALL OTHER TYPES		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
Native.....	250	48	298	2	2	4	22	6	28	17	1	18	23	12	35	93	15	108	3	1	4	26	6	32	64	7	71
Foreign.....	933	323	1256	7	7	14	70	25	95	42	7	49	136	114	250	377	99	476	24	8	32	142	42	184	135	28	163
Mixed.....	119	24	143	3	3	6	6	2	8	11	1	12	15	11	26	39	6	45	3	3	6	15	2	17	27	2	29
Unascertained.....	28	14	42	.....	.....	.....	2	1	3	2	.....	2	9	6	15	7	3	10	.....	.....	.....	4	2	6	4	2	6
Total.....	1350	409	1739	12	.....	12	100	34	134	72	9	81	183	143	326	516	123	639	30	9	39	187	52	239	230	39	269

TABLE 13. TIME IN HOSPITAL OF PATIENTS WITH ALCOHOLIC PSYCHOSES DISCHARGED AS RECOVERED.
FIRST ADMISSIONS OF 1910.

TIME IN HOSPITAL.		TOTAL			PATHO-LOGICAL INTOXI-CATION			ALCO-HOLIC DETERIO-RATION			DELIRIUM TREMENS			KORS-KOW'S DISEASE			ACUTE HALLU-CINOSIS			CHRONIC HALLU-CINOSIS			PARANOID STATES			ALL OTHER TYPES		
		Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
Under 1 month.....		26	4	30	1	1	2	1	1	2	5	1	6	14	3	17	1	1	2	1	1	2	1	6	1	4	4	8
1 month.....		37	8	45	2	2	4	5	5	10	5	7	7	7	14	16	5	21	1	1	2	8	1	9	5	3	8	
2 months.....		52	3	55	5	5	10	5	5	10	5	5	10	1	1	2	26	1	27	1	1	2	1	8	1	9	12	
3 months.....		37	5	42	1	1	2	1	1	2	1	1	2	2	2	4	16	2	18	1	1	2	7	1	8	12	8	
4-5 months.....		33	4	37	1	1	2	1	1	2	1	1	2	1	1	2	16	1	17	1	1	2	4	4	8	1	10	
6-8 months.....		22	10	32	1	1	2	1	1	2	1	1	2	3	5	8	4	14	1	1	2	7	2	9	1	10	4	
9-11 months.....		10	2	12	1	1	2	1	1	2	1	1	2	1	1	2	7	8	15	1	1	2	5	1	6	1	1	
1 year.....		10	1	11	1	1	2	1	1	2	1	1	2	1	1	2	8	1	9	1	1	2	1	1	1	1	1	
2 years.....		1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	1	1	1	
Total.....		227	38	265	4	4	8	3	1	4	23	2	25	7	7	14	113	16	129	2	2	4	31	6	37	41	4	8
FIRST ADMISSIONS OF 1911																												
Under 1 month.....		40	3	43	1	1	2	1	1	2	6	2	8	1	1	2	26	1	27	1	1	2	1	1	2	6	6	12
1 month.....		53	13	66	1	1	2	1	1	2	6	6	12	1	1	2	36	8	44	4	4	8	4	4	8	11	4	15
2 months.....		33	7	40	1	1	2	1	1	2	1	1	2	1	1	2	27	6	33	1	1	2	2	2	4	3	3	6
3 months.....		20	10	30	1	1	2	1	1	2	1	1	2	1	1	2	11	6	17	1	1	2	1	1	2	7	1	8
4-5 months.....		24	6	30	1	1	2	1	1	2	3	3	6	1	1	2	13	5	18	1	1	2	2	2	4	5	1	6
6-8 months.....		24	10	34	1	1	2	1	1	2	1	1	2	1	1	2	9	6	15	1	1	2	4	4	8	10	1	11
9-11 months.....		7	7	14	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	4	4	8	1	2	3
1 year.....		4	2	6	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	1	1	1	1
Total.....		211	58	269	1	1	2	2	2	4	17	2	19	3	13	16	125	33	158	2	2	4	19	1	20	44	9	53

FIRST ADMISSIONS OF 1912

[illegible]

FIRST ADMISSIONS OF 1910, 1911 AND 1912

[illegible]

TABLE 15. PERIOD OF HOSPITAL RESIDENCE OF PATIENTS WITH ALCOHOLIC PSYCHOSES WHO DIED IN THE HOSPITAL.
FIRST ADMISSIONS OF 1910.

	TOTAL		PATHOLOGICAL INTOXICATION		ALCOHOLIC DETERIORATION		DELIRIUM TREMENS		KORSAKOW'S DISEASE		ACUTE HALLUCINOSIS		CHRONIC HALLUCINOSIS		PARANOID STATES		ALL OTHER TYPES			
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total		
Less than 15 days.....	11	9	20	..	..	..	..	..	6	1	7	..	..	..	..	..	..	..
15 days to 1 month.....	4	6	10	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..
1 month.....	3	4	7	..	..	..	..	..	2	..	2	..	..	..	..	..	..	..
2 months.....	3	3	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 months.....	3	1	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4-5 months.....	..	4	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6-8 months.....	5	2	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9-11 months.....	2	2	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1 year.....	7	3	10	..	..	..	2	1	3	..	3	1	1	1	2	..	..	..
Total.....	38	28	66	5	2	7	6	17	32	4	5	9	1	3	5	2	7

FIRST ADMISSIONS OF 1911.

[illegible]

FIRST ADMISSIONS OF 1912.

Less than 15 days.....	16	8	21	.....	.....	.....	.....	.....	1	1	2	2	.....	2	4	6	10	3	.....	3	.....	.....	.....	1	.....	1	5	1	6
15 days to 1 month.....	1	3	4	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	2	2	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	1
1 month.....	2	1	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
2 months.....	2	2	4	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3 months.....	1	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4-5 months.....	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6-8 months.....	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9-11 months.....	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	25	15	40	.....	.....	.....	.....	.....	.....	2	2	4	2	2	9	12	21	4	.....	4	.....	.....	.....	1	.....	1	7	1	8

FIRST ADMISSIONS OF 1910, 1911 AND 1912.

Less than 15 days.....	36	29	56	1	1	2	10	1	11	8	17	25	4	4	2	2	11	1	12
15 days to 1 month.....	7	14	21	.....	.....	.....	.....	2	2	4	.....	.....	4	11	15	.....	1	1	.....	.....	.....	.....	.....	3	.....	3
1 month.....	9	10	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	6	9	1	1	2	.....	.....	.....	.....	.....	3	1	4
2 months.....	7	2	9	.....	.....	.....	.....	1	1	1	.....	.....	4	2	6	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
3 months.....	2	10	10	.....	.....	.....	.....	2	2	2	.....	.....	3	2	5	1	.....	.....	.....	.....	.....	.....	1	.....	1	1
4-5 months.....	4	5	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	1	4	.....	3	3	.....	.....	.....	.....	1	1	1	2
6-8 months.....	8	3	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	1	5	.....	1	1	.....	1	1	2	2	.....	2	2
9-11 months.....	3	3	6	.....	.....	.....	.....	1	1	1	.....	.....	1	1	2	1	.....	1	1	.....	.....	.....	.....	.....	1	1
1 year.....	9	3	12	.....	.....	.....	.....	3	1	4	.....	.....	4	1	5	2	1	3	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	91	62	153	.....	.....	.....	10	6	16	10	1	11	34	42	76	9	7	16	.....	2	2	6	22	4	26	

TABLE 16. AGE AT DEATH OF FIRST ADMISSIONS OF 1910, 1911, 1912 WITH ALCOHOLIC PSYCHOSES
WHO DIED IN THE HOSPITAL DURING THOSE YEARS.

AGE GROUP	TOTAL			PATHOLOGICAL INTOXICATION			ALCOHOLIC DETECTION			DELIRIUM TREMENS			KORSKOW'S DISEASE			ACUTE HALLUCINOSIS			CHRONIC HALLUCINOSIS			PARANOID STATES			ALL OTHER TYPES		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total			
Under 20 years,	1	1	2																								
20-24 years,	3	2	5																								
25-29 years,	8	12	20																								
30-34 years,	8	6	14																								
35-39 years,	13	17	30																								
40-44 years,	18	6	24																								
45-49 years,	19	10	29																								
50-54 years,	14	3	17																								
55-59 years,	9	3	12																								
60-64 years,	2	3	5																								
65-69 years,	1	1	2																								
70-74 years,			1																								
Total.....	91	62	153	10	6	16	10	1	11	34	42	76	9	7	16	2	2	6	22	4	26						

DEMENTIA PRÆCOX, PARAPHRENIA AND PARANOIA.*

(REVIEW OF KRÆPELIN'S LATEST CONCEPTION.)

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About twenty years have elapsed since Kræpelin first formulated his views regarding a group of cases for which he proposed the name dementia præcox. From the point of view of the older established psychiatry, Kræpelin's teachings were looked upon as decidedly revolutionary, and, as was to be expected, they aroused a great deal of objection and criticism. Much of this earlier opposition was, however, centered on non-essential aspects of the main issues, and did not in any appreciable way controvert the underlying constructive view-points as perceived by Kræpelin; in fact, these have to-day won a general acceptance among psychiatrists. Kræpelin's great contribution was his demonstration of the need of more careful study of individual symptoms and correlation of these with the entire course and outcome of mental disorders; this applied particularly to those chronic psychoses which he brought together under the name of dementia præcox. Kræpelin's work gave us essentially new prognostic principles and greatly broadened our perspective over the whole field of psychiatry.

Notwithstanding the admirable work of Kræpelin and his untiring energy, as revealed in the successive editions of his text book, the term dementia præcox remains to-day the symbol for a very imperfectly circumscribed clinical group. Widely divergent views are held regarding the nature of the disorder; as to its causation nothing definite is known, and by at least one group of psychiatrists it is more and more questioned if what we call dementia præcox is after all to be looked upon as a *disease* in the usual sense

* Read before the Ward's Island Psychiatric Society, April 14, 1914.

of the word. A review of Kræpelin's latest work in this field should be of some interest at the present time, and serve perhaps to bring clearly before us some of the more important problems in the dementia præcox and paranoic groups. We can not under any circumstances dismiss lightly the views of one who has exercised the greatest influence on modern psychiatry. It seems to me rather essential to examine carefully Kræpelin's view-point and see just how far it takes us. If its limitations are once perceived then we may get square with certain issues which otherwise might seriously hinder further progress.

Kræpelin's position regarding dementia præcox has been fully re-stated in the eighth edition of his text book, where 350 pages are devoted to dementia præcox and allied disorders. In this latest presentation Kræpelin has worked over and re-arranged the whole subject matter of these chapters and has introduced under dementia præcox a number of new sub-groups. He treats separately and in an entirely new way the paranoic conditions. His conception of paranoia as a distinct form of mental disease is given in a recent article in the *Zeitschrift für d. g. Neurologie und Psychiatrie* (Originalien, Bd 11, page 617).

It is not purposed to undertake here a critical review of Kræpelin's presentation of dementia præcox but rather to sketch as briefly as possible his general position and then to discuss more particularly the problems as he sees them in the study of the mental makeup, then examine the basis for the auto-intoxication theory and finally consider the facts offered to support the view that dementia præcox is an organic brain disease.

Under the general heading of the "*endogenous deteriorations*" Kræpelin forms two large groups: (1) Dementia præcox and (2) paraphrenia. Both of these disorders have the common peculiarity that they develop independently of any perceptible external influence, and are therefore considered to originate from internal or endogenous causes.*

* Endogenous causes in the Kræpelinian sense, refer apparently only to internal *physical* factors: metabolism disturbances, auto-intoxications, altered bio-chemical products, etc. Psychogenic causes, emotional states, mental conflicts, etc., are not included.

In both groups we have to do with essentially chronic psychoses and more or less mental impairment, and Kræpelin considers it not improbable that the same disease process may be found to underlie both types.

DEMENTIA PRÆCOX.

In regard to the general symptomatology of dementia præcox and the nature of the disorder, we find that Kræpelin has not modified his previously expressed views in any important particular. Before discussing some of the general considerations which underlie his conception of the psychosis, let us glance at the new sub-types he now proposes and of which there are no less than eight.

1. *Dementia Simplex*: An insidious, almost imperceptibly increasing apathy. Impoverishment of ideas and loss of interest. Onset usually about puberty or reaching back even into childhood. No delusions or hallucinations.

2. *Hebephrenia or Silly Dementia*: Progressive, usually rapid deterioration, marked from the first by peculiar behavior, hallucinations, paranoid trends or ideas of grandeur, scattering of thought, emotional variability. Depression often at the beginning. Particularly characteristic are the silly behavior, uncalled for laughter and infantile attitudes.

3. *Simple Depressive or Stuporous Forms*: Cases which show a prolonged depression, with or without stuporous symptoms followed by gradual deterioration.

4. *Depressions with Delusion Formation*: Depressive cases showing a marked delusion trend often of grotesque form and accompanied by abundant hallucinations.

5. *Excited Forms*: Cases showing severe and long persisting excitement. According to clinical course the following sub-types are differentiated:

(a) *Circular Type*: Usually begins with depression and prominent delusion trend, subsequently a marked excitement develops. The persistent senseless excitement is most characteristic for this type.

(b) *Agitated Type*: Cases showing a continuous rest-

lessness and excitement, passing into deterioration, with or without remissions.

(c) *Periodic Type*: An infrequent type showing an episodic course, excitements, followed by remissions. The intervals vary between the attacks, but the final outcome is deterioration. Some of these cases were formerly classed under manic-depressive insanity. The monotonous or impulsive activity and the limited range of thought help to differentiate these cases from the manic excitements.

6. *Katatonic Forms*: Cases which show both katatonic excitement and stupor. The alternation from one phase to the other is the chief characteristic of this group which is thus more restricted than formerly.

7. *Paranoid Forms*: Types in which delusions and hallucinations are the most prominent symptoms, but in addition there appear the characteristic features of dementia præcox. Two types are mentioned:

(a) *Dementia Paranoides Gravis*: Cases beginning with simple delusion formation, but showing later plainly peculiar behavior and emotional deterioration. These cases occur especially in middle and later years of life.

(b) *Dementia Paranoides Mitis, or Hallucinatory Deterioration*: Cases developing like the first paranoid type, but showing a peculiar terminal condition with long persistence of hallucinations and delusions. Because the core of the personality and the behavior seem less severely damaged one may speak of a dementia paranoides mitis.

8. *Forms with Marked Speech Confusion (Schizophrenia)*: Shown particularly in the end stages with relatively less deterioration in other fields.

Kræpelin states that the lines between these various groups can not be sharply drawn and admits that there are numerous transitions. Still the designated types recur with sufficient frequency to attract attention, and they are thought to have a certain bearing on the further course and outcome of the disorder. The excited and katatonic forms are, for instance, most likely to have long remissions, while in the simple, hebephrenic and paranoid forms remissions are much less common. Also certain of the types appear

to lead to a more severe terminal deterioration than do others, *e. g.* the katatonic, hebephrenic and first paranoid types are most apt to sink into a deep dementia.

While these various sub-groups may strike one as somewhat artificial, yet on the whole the making of such subdivisions is probably quite desirable. Certainly it tends to emphasize clinical differences instead of smoothing them out and we need not waste time in the future trying to make a dementia præcox case fit into one of the three old sub-forms; many cases obviously did not fit into any one of them.

Now as to Kræpelin's ideas regarding the nature of dementia præcox: He looks upon all of these varied clinical pictures as manifestations of an underlying disease. He thinks of it as an entity, a special disease process, just as one looks upon general paralysis as a circumscribed disease entity. He conceives of it as arising from causes originating within the body, probably some glandular activity is disturbed, or some toxin is elaborated which damages the nervous tissue.

In the symptomatology of dementia præcox we find that Kræpelin has not departed from his former position. He singles out the *will* and the *emotions* as basic elements in mental life and reduces the primary symptoms of dementia præcox to disturbances in these fields. Two fundamental groups of symptoms are therefore emphasized. The first depends on the weakening of those emotional impulses which form continuously the motives for our voluntary activity. The second group of symptoms arises from a loss of the inner unity of mental life; there is no longer an harmonious adjustment between the intellectual, emotional and volitional reactions; intrapsychic co-ordination is impaired so that the emotional responses do not correspond to the content of thought and the motor reactions tend to occur independently of the will and hence assume an impulsive character. In other words, we have to do with a disorder which affects primarily the feelings and the will impulses and brings about an "intrapsychic ataxia". These fundamental disturbances would then account for the failure of

interest and energy, the apathy and indifference, the impulsiveness, negativism and odd behavior, and finally also the discrepancies between ideas, mood and behavior.

Passing now from the symptomatology to a consideration of the etiological issues we will take up Kræpelin's idea of the rôle of the personality and mental makeup in the development of dementia præcox.

Kræpelin discusses the question as to whether dementia præcox can be looked upon as a constitutional psychosis dependent perhaps upon a degenerate family stock. He points out that heredity does not appear to be more frequent in dementia præcox than in certain other psychoses, and that the best known constitutional disorders, such as hysteria, manic-depressive insanity and psychopathic states do not lead to a deterioration but to a periodic recurrence of symptoms. He believes that dementia præcox is more comparable to epilepsy. In both epilepsy and dementia præcox we have certain peculiarities of disposition, yet we can only explain the deterioration by assuming that we have to do in both cases with progressive destructive disease processes which apparently most often begin back in childhood or early adolescence.

Kræpelin acknowledges that a large proportion of the cases of dementia præcox show well marked peculiarities of mental makeup long before a definite psychosis sets in. He singles out the following as the most frequent types of personality met with in his dementia præcox cases:

- (1) Shut-in, seclusive type, most frequent in male cases.
- (2) Sensitive, irritable, excitable obstinate type, mostly women.
- (3) Lazy, unsteady, shiftless, mischievous type, mostly boys. These often become tramps or criminals.
- (4) Good-natured, pliable, conscientious, diligent type, mostly boys who are especially marked by their strict avoidance of all youthful naughtiness.

In discussing the relation of these abnormalities of makeup to the psychosis, Kræpelin considers two questions:

Are the peculiarities the expression of some general

harmful influence which lowers the resistance so that dementia præcox subsequently develops?

Are the so-called peculiarities of makeup the earliest and first signs of dementia præcox itself?

Kræpelin inclines to the latter view and points out that it is just these peculiarities that dementia præcox cases show during remissions, stationary stages and recoveries with defects. We then see that persons who were apparently quite normal before the psychosis have become quiet, shy and reticent, or stubborn, irritable and sensitive or mild, harmless and easily influenced. That is to say some cases show as a result of the psychosis just those peculiarities which others show before an obvious mental breakdown.

Another point is that very often a child at a certain age will develop these peculiarities of makeup, but the definite psychosis only occurs much later.

Kræpelin even goes so far as to suggest that the different types of makeup described and the prominent individual traits are represented in the clinical picture of the subsequent psychosis itself or the end stages: seclusive, obstinate traits appear later as negativism, odd behavior accounts for mannerisms, irritability corresponds to impulsiveness, the over-conscientious, pliable, easily influenced personalities show traits which later are transformed into automatic obedience and suggestibility.

He concludes that the peculiarities of makeup which so often precede the definite psychosis are a part of the same process or cause which bring about the dementia præcox; that they belong in fact to the beginning of the disease itself, which therefore often really begins in early childhood.

When individuals show these dementia præcox traits in their makeup but fail to develop a psychosis later, we have to think of a dementia præcox which did not for some reason or other progress or develop further. We know from stationary cases of dementia præcox and apparently healed cases that a non-progressive stage is often reached. These undeveloped cases of childhood correspond to Bleuler's latent schizophrenia.

Kræpelin next discusses the primary cause of dementia præcox. This, he says, remains unknown, but many facts indicate that the psychosis is the result of a self-poisoning, arising probably from a disturbance of metabolism.

It is of interest to note just what evidence Kræpelin is able to assemble to support this view. He mentions (1) that the anatomical alterations described in the brain resemble those of a chronic poisoning and (2) the occurrence of idio-muscular irritability, increased excitability of nerves and muscles and increase of the tendon reflexes.

Other considerations which might support an auto-intoxication theory are mentioned by Kræpelin, but admitted by him to be still wholly unproven. He refers to reports of certain blood changes and results of metabolism studies which have not, however, been confirmed. He thinks moreover that it is important to note that dementia præcox frequently develops in connection with childbearing, that thyroid symptoms are sometimes found, that fluctuations in the body weight are common, that epileptiform attacks are met with, that sudden death occurs, and that osteomalacia has been reported in dementia præcox.

He remarks that while we are ignorant of the source of the poison, we might also raise the same objection regarding the meta-alcoholic disorders. (He refers evidently to the theory of secondary intoxication, by unknown poisonous products, to account for the development of delirium tremens, Korsakow's disease, and other alcoholic psychoses.)

Kræpelin expresses the firm conviction that in dementia præcox we have to do with a wide spread and severe disease of the cerebral cortex. The work of Alzheimer and Nissl forms the foundation for this claim. Anatomical changes differing somewhat in the acute and chronic cases are described. Most marked alterations are reported to occur in the second and third layers of the cortex. The chief findings are sclerotic nerve cells, infiltration of cells with a lipoid substance, disappearance of nervous elements, overgrowth of neuroglia and appearance of ameboidglia cells.

Kræpelin discusses the relation of these findings to the clinical picture of dementia præcox. He considers first the

localization of the process in the various functional areas of the cortex and secondly the distribution of the process in the different layers of the cortex. This discussion impresses one as being highly speculative and is not in the least supported, as far as I know, by any established facts regarding the physiology of the different parts of the cerebral cortex.

If the frontal cortex is found to be most severely affected it would correspond to the seat of the mental functions most damaged in dementia præcox. The higher and finer mental qualities which are generally accredited to the frontal lobes are chiefly damaged in dementia præcox in contra-distinction to the memory and acquired knowledge which are well preserved. Damage to the anterior central convolutions would account for disturbance of volitional impulses and muscular activity. As this damage does not lead to actual motor paralysis or apraxia we must suppose that the centers for liberation of movements are not affected.

The disjointed speech and neologisms which occur in dementia præcox resemble the productions in sensory aphasia. This points to a localization of the process in the temporal lobe; the prominence of auditory hallucinations in the psychosis also points to an irritation of the temporal lobe.

Kræpelin then puts forth the hypothesis that the second and third cortical layers have to do with elaboration or translation of perceptions into general concepts, of sensations into the higher feelings, of impulses into volitional activity. Thus a further explanation of the symptomatology of dementia præcox is possible. If Alzheimer's findings are confirmed, then disease of the small cell layers of the cortex must, according to Kræpelin, be looked upon as responsible for those mental disturbances which are most characteristic for dementia præcox.

It is often pointed out that the dementia of dementia præcox is not at all like the dementia of the well known organic states, *e. g.*, paresis, arteriosclerotic and senile dementia and differs from these dementias particularly in respect to the good preservation memory. Kræpelin at-

tempts to explain this by suggesting that the deeper layers of the cortex have probably more to do with the faculty of memory than the upper layers which are supposed to be chiefly affected in dementia præcox.

PARAPHRENIA.

Paraphrenia is composed of cases part of which were formerly classed under dementia præcox and a part under paranoia. Paraphrenia is differentiated from dementia præcox by the fact that throughout its course the main disturbance appears to be in the intellectual sphere, and one does not meet with the peculiar disturbances of will and the marked emotional deterioration which are so characteristic of dementia præcox. In other words, paraphrenia comprises those chronic delusional states which do not show in their course the deterioration in conduct, the odd behavior, or the emotional indifference of the ordinary dementia præcox case. Paraphrenia would thus correspond in a large measure to the group of paranoic conditions and certain cases allied to dementia præcox as these terms have been used in the diagnostic groupings of the New York State Hospitals for the past ten years.

The paraphrenia cases, notwithstanding certain resemblances to dementia præcox, do not show the same disruption of the personality because there is far less disturbance in the emotional and volitional sides of the mental life. The clinical pictures are characterized chiefly by the marked paranoid delusions. Impairment in the emotional reactions occur, if at all, in the latest stages of the disorder, and there is never the dulness and indifference which appear so often as the earliest symptoms of dementia præcox. The behavior of these cases also remains well in harmony with the ideas and the moods. The following four sub-forms are attempted under paraphrenia:

Paraphrenia Systematica: This is the principal paraphrenic group and includes a large proportion of cases of the type formerly described by Magnan under "délire chronique à évolution systématique" (chronic delusion of systematic form). The disorder develops very slowly with

change in character, suspiciousness, sensitiveness and irritability, then the trend is gradually evolved in the form of delusions of persecution accompanied by hallucinations. Later on (sometimes from the first) ideas of grandeur appear. The peculiar conduct, the incoherence and the emotional and ideational incongruities of dementia præcox are lacking. The thorough working out of the delusion system, the adequate emotional reactions, orderly behavior and grandiose trend are the most characteristic features.

Paraphrenia Expansiva: A smaller group characterized by florid delusions of grandeur and persecution, with a prevailing elevation of mood and mild excitement. Visual hallucinations (visions) are prominent. Cases of this type were formerly looked upon by Kræpelin as being chronic manic states. Almost if not all the cases occurred in women and it is possibly a purely feminine type.

Paraphrenia Confabulans: A very small group in which falsifications of memory dominate the clinical picture. The ideas often reach back to childhood and particularly common is the claim of royal birth, the original paranoia of the older writers.

Paraphrenia Fantastica: Abundant delusions of an extremely absurd, senseless, disconnected and changeable form. Particularly frequent are ideas of bodily annoyance and persecutions. Speech peculiarities also occur and Kræpelin admits that there is more doubt about this type being a clinical unit, separable from dementia præcox than there is about the others here described.

PARANOIA.

There is a small group of cases for which Kræpelin proposes to still reserve the name of paranoia. A new conception is, however, formulated for paranoia which is now looked upon as the reaction of an abnormally constituted personality to the struggle of life. It is the outgrowth of personal difficulties in adaptation to the environment and is not to be looked upon as the result of a disease process as are dementia præcox and paraphrenia. Paranoia is rather a teratological mal-development.

The paranoic character forms the foundation for the psychosis. These personalities show a great over-valuation of self, combined with suspiciousness. The psychosis is characterized by an extremely gradual development of an intellectually produced and unassailable delusion with complete retention of the integrity of the personality. Hallucinations do not appear and there is none of the disturbance of conduct, of will or of emotion as occurs in dementia præcox. The clinical picture carries above all the stamp of a delusion of greatness which crops up apparently after all kinds of internal conflicts and turmoil and represents the fulfillment of the secret wishes and day dreams of the individual.

Most of these cases are able to get along in society and their commitment is usually not necessary. They may be known as reformers, discoverers, statesmen, founders of new religions, philosophers, etc.

Of particular interest is the fact that Kræpelin thus brings paranoia definitely into the group of psychogenic mental disorders.

SOME CONTRIBUTIONS OF PSYCHOANALYSIS TO THE PROBLEMS OF EDUCATION.*

BY CHARLES R. PAYNE, A. B., M. D.,
Wadhams, N. Y.

Psychoanalysis was devised as a method of treatment for the psychoneuroses. It has grown far beyond this modest beginning, throwing light upon such diverse products of the human mind as mythology, language, art, and religion. Perhaps in no field, aside from its original one of therapeutics, has psychoanalysis performed greater service than in that of education. It is to the benefits in this field that I would call your attention for a few minutes this afternoon.

A convenient way of grouping these contributions is according to the various ages or periods of the child's development. Taking first infancy, which, for our purpose, we may roughly define as about the first five years of life, during which time the child is entirely in the home and receives its training from parents and nurses, we find that Freud has shown conclusively how important for the future development of sound health and character, these earliest years are. In the space of this paper, I may mention only some of the points which he has emphasized.

First and foremost is the question of early enlightenment regarding the sexual functions. I do not need to argue before this audience concerning the very early age at which the child begins to inquire regarding the origin of children and how they get into the world. This earnest quest after truth starts about the time of the birth of a little brother or sister say between the ages of three and five. If the child is put off with false tales, or repressed entirely with the command not to ask about such things, its curiosity, instead of being satisfied, is merely whetted, and the subject which might have been settled by a frank answer upon the part of the parent, is made the object of constant speculation in

* Read at the annual meeting of the American Psychoanalytic Association held at Albany, May 5, 1914.

phantasy life. No question seems to stimulate mental inquiry more than one to which no answer can be obtained. The effect of parents' deceitfulness in answering this first momentous question of the child's growing mind is often seen later in the distrust and even dislike which the older child shows toward parents and others in authority.

Therefore, we have as a first psychoanalytic principle, the early enlightenment of children regarding the reproductive function. The information need not precede the inquiry nor exceed in amount that necessary to satisfy the query. Usually, a brief description of the maternal functions with illustrations from lower forms of life is sufficient for some time. The inquiry regarding the paternal function seems to come considerably later.

Other valuable hints for the proper care and training of the child in this early period are that the child should sleep alone in a room by itself. That, after the age of two, it should not be taken into bed with parents or nurses, and that the correct attitude toward the child upon the part of the parents should be neither one of extreme tenderness nor one of extreme harshness. Too much fondling and too stern corrective measures are both harmful, the former because it stimulates a precocious development of the sexual instinct and the latter because they may make the child rebellious against all authority. Rather, the child should be subjected to firm guidance with due attention to proper sublimation of the instinctive tendencies which become evident.

Coming now to a second period in the child's life, which we may designate as the school age, that is, the period extending from the time the child first begins to go to school until it is approaching maturity and ready to enter the university or trade school, let us see what lessons psychoanalysis has to teach.

Dr. Oskar Pfister, a pastor and seminary teacher in Zürich, Switzerland, who has devoted a great deal of study to this period, has recently published his results in a most interesting book called "*Die Psychanalytische Methode.*" Since he has probably devoted more thought to this particu-

lar phase of psychoanalysis than any other man, I shall quote extensively from his work.

One of the first facts to which Pfister calls attention is the amazing number of neurotics found among school children. This is not surprising when we recall the errors of previous training which psychoanalysis has brought to light. The important point, however, is that he finds that the bad habits and nervous symptoms which these children display, yield to psychoanalytic procedure almost like magic. Often a few brief analyses will serve to trace the trouble back to some infantile fixation or to some wrong attitude toward the parents, perhaps an Œdipus complex, and the fault which had resisted punishment, threat, and promise of reward, disappears at once. It takes but little imagination to see what far-reaching influence upon the child's later life and career, such an early relief of incipient symptoms may exert. Not only may he be spared untold suffering from mental symptoms, but his life will be vastly more productive from the prevention of inhibitions.

Among the physical symptoms of psychogenic origin which Pfister has seen disappear under psychoanalytic treatment are: stuttering, disturbances of writing, bed-wetting, convulsions, headache, pains in the gastro-intestinal tract, neuralgia, bowel troubles, skin eruptions, etc. Among the mental disturbances, he mentions: numerous anxiety and obsessional conditions, such as pathological fear, abulia, withdrawal of love from men and objects. This latter, an introversion, is often due to an Œdipus complex. Says Pfister: "Many an incipient Hamlet can be saved from catatonia." Many states of indecision are due to complexes and inhibited intellectual powers; seemingly lazy, stupid, and uninterested pupils are often changed by analysis into energetic, ambitious and industrious students. Punishment and threats have no favorable effect on these types, for they merely emphasize the attitude toward the father, which is often the root of the trouble. Frequent obsessional types, as: stereotyped gestures, ceremonials in gait as touching or avoiding the borders of the blocks in the sidewalk, counting to certain numbers, seeking oracles, puzzling over day-

dreams, formation of secret speech and writing, meaningless mannerisms in writing flourishes, etc., laughing without appropriate cause, obsessional washing, fear of closed or open places, and many other symptoms familiar to every neurologist. Many cases of bad habits of conduct come under this heading, as lying, stealing, cruelty to animals, etc.

In order that these children should receive intelligent treatment, Pfister believes that teachers should be trained in psychoanalysis. Not that every teacher should be a psychoanalyst, for not every one is adapted by disposition for such work, but that in every school one or more teachers should be properly trained in psychoanalysis, to whom these odd and usually ill-understood children could be referred. He thinks that the teachers should take up this work because many, perhaps most of these children, do not develop severe enough symptoms to send them to physicians for treatment, and further because the latter could not afford the time necessary for so many mild cases. A little reflection will convince you who are familiar with the wasted lives of neurotic patients what an enormous amount of energy might be saved for useful effort in the growing generation.

Passing now to that difficult period in a boy's life in which he must choose a vocation or profession, what aid do we find psychoanalysis has to offer? In an interesting little book entitled "*Die Bedeutung der Psychoanalyse für die Geisteswissenschaften*" (*The Importance of Psychoanalysis for the Mental Sciences*), Drs. Rank and Sachs of Vienna have pointed out that character can be conceived as an especially clear mode of reaction of the individual occurring in typical manner, and that in character formation, a far smaller share falls to the intellectual agencies than has hitherto been believed. Rather, the character structure rests on an economy of mental interplay of forces suitable for the individual, which sometimes demands a quite definite distribution of masses of affect, a certain amount of gratification, suppression and sublimation of instinct. The remaining character traits of a man are

either unchanged continuations of the original instinctive impulses, diversions of the same to higher aims, or reaction formations against the same. Thus a child, perhaps originally cruel, who gratifies his sadistic instinct by tormenting animals, may later become a butcher or a hunter, thereby continuing the old satisfaction and gratification of instinct in a little modified though socially more useful manner; he may, however, choose a profession which allows him this in the service of higher, more intellectual, and more scientific interests, as naturalist, student of animal experimentation, or surgeon. In a third case, the overpowerful instinctive impulse may fall under intensive repression and seek gratification by way of reaction formation in humanitarian and ethical activities, which are opposed to the original instinctive aims.

Thus, psychoanalysis may be of great aid to the educator in determining the instinctive tendencies which are strongest in the child. Since the individual will come nearest to the educational ideal of being subjectively most happy and at the same time most efficiently fulfilling his profession in the service of society, where he is permitted to utilize the infantile sources of instinctive activity, psychoanalysis will be of great value in promoting this end.

In addition, not only will many children who barely escape shipwreck from neurotic habits or faults be saved to useful lives, but the wise application of psychoanalytic principles during the formative period of life will probably keep many from swelling the ranks of perverts, idlers, and the antisocial types of anarchists and criminals.

If, as we are often assured, the medicine of the future is to be preventive medicine, of how great value will be psychoanalysis in the prevention of those diseases which are so destructive of man's happiness and usefulness, the neuroses and psychoneuroses and all their manifold manifestations.

MINUTES OF QUARTERLY CONFERENCE

MAY 7, 1914.

Minutes of the conference of State hospital superintendents and representatives with the State Hospital Commission, held at the Capitol in Albany, May 7, 1914.

Present—

Commissioners MORGAN, MAY and PARKER.

Dr. AUGUST HOCH, Director of the Psychiatric Institute.

Utica State Hospital, HAROLD L. PALMER, M. D., Medical Superintendent, and CHARLES A. MOSHER, Steward.

Willard State Hospital, ROBERT M. ELLIOTT, M. D., Medical Superintendent, and FRANK L. WARNE, Steward.

Hudson River State Hospital, CHARLES W. PILGRIM, M. D., Medical Superintendent, and GEORGE R. FINTON, Steward.

Middletown State Homeopathic Hospital, MAURICE C. ASHLEY, M. D., Medical Superintendent, and HENRY J. LEONARD, Steward.

Buffalo State Hospital, ARTHUR W. HURD, M. D., Medical Superintendent, and JOHN E. CULP, Steward.

Binghamton State Hospital, CHARLES G. WAGNER, M. D., Medical Superintendent, and EDWARD S. GRANEY, Steward.

St. Lawrence State Hospital, LEWIS WEBB, Steward.

Rochester State Hospital, EUGENE H. HOWARD, M. D., Medical Superintendent, and C. L. WEST, Steward.

Gowanda State Homeopathic Hospital, CLARENCE A. POTTER, M. D., Acting Medical Superintendent.

Kings Park State Hospital, C. FLOYD HAVILAND, M. D., First Assistant Physician, and CHAS. S. PITCHER, Steward.

Long Island State Hospital, ELBERT M. SOMERS, M. D., Medical Superintendent, and W. L. BUCK, Steward.

Manhattan State Hospital, WILLIAM MABON, M. D., Medical Superintendent, and GEORGE P. WATSON, Steward.

Central Islip State Hospital, MARCUS B. HEYMAN, M. D., Assistant Superintendent, and W. J. MCKEE, Steward.

Mohansic State Hospital, ISHAM G. HARRIS, M. D., Medical Superintendent.

Dr. WALTER G. RYON, Medical Inspector, State Hospital Commission.

Mr. CHARLES B. DIX, Inspector of Buildings and Engineering for the State Hospital Commission.

Mr. JOHN M. PHILLIPS, Inspector of Supplies for the State Hospital Commission.

Mr. MOSES ETTINGER, Inspector of Industries and Manufactures for the State Hospital Commission.

- Mr. WILLIAM C. O'HERN, Secretary of the Purchasing Committee for State Hospitals.
- Dr. WILLIAM L. RUSSELL, Medical Superintendent, Bloomingdale Hospital, White Plains, N. Y.
- Dr. C. J. PATTERSON, Physician in Charge, Marshall Sanitarium, Troy, N. Y.
- Dr. J. I. MCKELWAY, Deputy Examiner, Bureau of Deportation, New York.
- Dr. H. M. POLLOCK, Statistician for the New York State Hospital Commission.
- Hon. ABRAM S. STOTHOFF, President, and Miss BERTHA PECK, Managers of the Willard State Hospital.
- Mrs. ANNIE D. MILLS, Manager of the Binghamton State Hospital.
- Hon. HARRY D. WINTERS, Deputy Commissioner of Agriculture, Albany, N. Y.
- Mr. NORTON, Inspector for the New York State Department of Agriculture.
- Mr. E. S. ELWOOD, Assistant Secretary of the State Charities Aid Association, New York, N. Y.
- Dr. ROBERT B. LAMB, Troy, N. Y., formerly superintendent of the Matteawan State Hospital.

Commissioner MAY: It affords me great pleasure at this time to introduce to you as the presiding officer of this conference the Honorable Andrew D. Morgan of Ilion, who has recently been appointed legal member of this Commission by Governor Glynn and has since been elected Chairman of the Commission by the action of his colleagues. I feel quite certain that his appointment will prove to be as thoroughly satisfactory and as highly acceptable to you as it has been to Commissioner Parker and myself. (Applause.)

The CHAIRMAN: *Ladies and Gentlemen*—As I have not yet obtained a very large amount of information concerning the hospital matters, or as large perhaps as I hope to before many weeks go by, I have taken occasion to have the programme reduced to writing.

The first matter to be brought to your attention to-day is that of voluntary patients. It has come to the attention of the Commission that patients have been retained in some of the hospitals for a period of a year or more as voluntary cases. In view of the serious overcrowding which exists in the hospitals, it would seem to the Commission that only such patients as are clearly insane within the meaning of the statute and require the treatment to be afforded by a State hospital should be retained for any long period. If a permanent residence is required, such cases should be committed. If a protracted period of treatment is not necessary, that fact should be determined within a few months.

The Commission desires to have the views of the superintendents as to whether under the circumstances patients should be allowed to

remain as voluntary cases for an indefinite period. If not, what limitation should be placed upon their length of residence before commitment.

This question is open for the discussion of the superintendents and others. I would like first to ask the views of Dr. Mabon.

Dr. MABON: Mr. Chairman and members of the conference. It seems to me that every voluntary case must be judged on its merits. There are some cases which might well be retained in hospitals for a very long period of time without a commitment. There are persons who could well be committed and it is simply a question whether a commitment paper should be made out. There are certain cases that we can determine within a month or so, whether those patients should remain as voluntary patients, or whether they ought to be committed.

At Manhattan our policy is that whenever a voluntary patient comes to us and it is later found the patient needs to be committed, to send the patient to Bellevue and have the commitment made out. Furthermore, I think that a voluntary patient who is homicidal or suicidal should not be discharged from the institution to the care of friends at the end of ten days unless such patient should be committed to an institution. I have one case in mind in which the suicidal tendency was not manifested in the patient. Upon her request she was taken out by relatives and shortly afterwards committed suicide by the use of gas.

What is the objection to keeping a patient in an institution a year, or two or three or four years, if that patient is in need of treatment? If you do not get the patient one way, you will another. Of course, if the patient is not insane, he should not be kept. It is not those patients who are sane who are being kept in institutions, but those insane within the meaning of the statute.

Dr. WAGNER: I think Dr. Mabon is entirely right. It is simply a question whether the patient is in need of care and treatment in an institution. If he needs institutional care, the patient should remain in the hospital. Whether the patient is on regular commitment or is there after having signed a voluntary application has little or no bearing, if the patient needs the care and treatment the institution can provide. It should be left entirely to the judgment of the superintendent when the discharge should take place.

Dr. MABON: I would like to say one word more regarding this. We have a patient with us who had been committed to a private institution at Stamford, Connecticut, and another private institution in this State and finally came to us on commitment. The patient resented this and after conference with the former legal member of the Commission, Judge Bissell, we discharged the patient. That patient immediately afterwards signed an application for voluntary admission and after two years made a very good recovery. I believe if he had stayed under commitment, he would have been at the institution to-day.

The CHAIRMAN: I would like to ask Dr. Ashley to favor us with his views.

Dr. ASHLEY: I am entirely in accord with the two previous speakers on this subject. I think you can not lay down hard and fast rules covering every individual patient who comes into the institution. Each case must be judged on its merits. In some cases we discover very soon after the patients come to us and make application for admission that they should be committed, and in those cases we have them committed. In other cases we have had them remain with us a year or longer, even two years as voluntary cases, if they were not proper cases to be sent out away from the institution. It is simply a question whether we continue them as voluntary cases. It seems to me whenever we can avoid putting the stigma on an individual of being committed to an institution, it is that much to his advantage,

The CHAIRMAN: Dr. Howard, will you give us your views?

Dr. HOWARD: Well, the views thus far expressed are such as you would expect from physicians who think mostly of the welfare of the individual patients and what the effect of commitment or non-commitment would have upon those particular cases, as to their hopes of recovery and their peace of mind. Yet, it seems to me, we have as officers in charge of public hospitals, another point of view which it is necessary and right for us to take into consideration, particularly that of the justifiable attitude of the statute and its executive officers relative to the care of the insane in custody in public State hospitals, and from that point of view, it seems to me that there is very grave doubt about its being the best policy for the State of New York in the care of its insane to continue voluntary cases for a very great length of time. The patients themselves, if they have from three to six months care and treatment, are likely to have gained about what benefit is to come to them from that care and treatment, although there are exceptional cases such as Dr. Mabon described that recover after a longer course of treatment.

My own opinion is that the voluntary patient in State hospitals is likely to be a source of solicitude and of more lax guidance than would be the case if that patient was in custody under commitment, and that there is in the vast majority of cases damage to the patient from this lax guidance. There is occasionally among voluntary cases a patient that seeks admission improperly; knowing that he is insane, he takes liberties with his life and does wrong and then makes use of the hospital to get out of his trouble, because he knows that he is sure to be considered of unsound mind and can be cared for there.

Then there are a certain number of critics who maintain that all voluntary patients are in all human probability not insane and that the hospitals are being used for persons that need not be cared for. Certainly no great injustice can devolve upon the patients if, after

from three to six months residence in the hospital, the question as to whether they continue there for a longer period be referred to two medical examiners in lunacy and that matter left to the court. The practical matter in connection with it is that the superintendent of the poor, who is primarily the officer who furnishes the examiners, is under no proper obligation to help out a hospital in its management by sending two physicians to examine a voluntary patient, and it would remove some difficulty if arrangements were made whereby physicians should be paid a nominal fee of five dollars each for their services in making the examination of voluntary patients.

Dr. HURD: I feel that I have very little to add beyond what has been said. We have had fortunately no special trouble with the question. Patients either get well or so much better that we can discharge them, as we are in the habit of doing to make room for the large numbers coming to us all the time. If they get worse so they can not be considered entirely clear as to their choice, we have them committed. In the chronic cases we judge each one by itself. If the friends can care for the patient after he leaves the hospital, we urge their doing so. If the patients require hospital care to insure safety to themselves or others, we continue them as voluntary patients so long as they have proper insight into their application, and we consider the law is not violated by so continuing them.

Dr. ELLIOTT: It has been the policy at Willard for us to have the voluntary patients committed when it became evident that their condition was such as to require commitment, that is, when the patient did not have the mental capacity to decide for himself whether he wished to be in the hospital or not. That is the real test as to whether a patient should remain as voluntary or be committed. The law of course does not put any limit of time and, as has already been said, it is a matter of judgment on the part of the physicians in regard to each individual case. But there is one difficulty that we have encountered at Willard with regard to commitments of some of these voluntary patients when it seemed necessary. For instance, three years ago, a man was brought to the hospital from Allegany County, a long distance from Willard, by his relatives, who sought admission as a voluntary patient. He was mildly demented, but seemed to understand what it meant to come to the hospital and make application for admission. He was received and subsequently all his relatives moved away from Allegany County and went to New England and, so far as I know at the present time, he has no relatives in the State of New York, neither has he any property, and no one, so far as I know, who is legally responsible for him. He has been in the hospital for three years as a voluntary patient and is still there. The local authorities, the local health officer does not feel that it is just to the County of Seneca to have to bear the expense of commitment of such voluntary patients and I feel that he has a very good argument. This patient never was a resident of Seneca County, but

it just happens that the hospital is situated in that county. We have another patient, a woman, who was deported from the State of Iowa some six months ago by the permission of the State Hospital Commission, the authorities in that State having had correspondence with this Commission and authorized their agent to bring this patient to Willard, and she was brought there by a nurse from the hospital in Iowa. There was no commitment and we had no understanding with the Commission and received no instructions as to having her committed. She was manifestly not a proper charge upon the County of Seneca. Fortunately the woman's mental condition was such that she could make voluntary application and was perfectly willing to do so, so we received her as a voluntary admission and she is still there.

That brings out the necessity Dr. Howard referred to of having some arrangement with the consent of the Commission in emergencies of that kind to employ local doctors at a nominal fee of five dollars each to make examinations so we can have a regular commitment in such cases. Those are difficulties which are likely to arise, especially at Willard, where we have a large territory with very poor transportation facilities and where it is not possible to arrange for the commitment of voluntary patients from the counties from which they came.

Dr. PILGRIM: I quite disagree with Dr. Howard, for I think instead of being a detriment to the hospitals, the voluntary patients are a benefit, and I should be very glad to have the number increased instead of diminished. I do not see why voluntary patients should not be treated on the same basis as committed patients. When a voluntary patient comes to the hospital and signs the agreement to stay and receive treatment, he fulfills the requirements of the law just as much as when committed by two physicians. It seems to me it would be quite as sensible to put a limit on the time of committed cases. They come to us to be cared for until able to go home and I do not see why one rule should apply to one class and another to another.

Dr. HEYMAN: I am directed by Dr. Smith to state that in his opinion there are two well defined points.

Our experience at Central Islip with voluntary patients, and we have had a number, has not been brilliant. Practically all are graduates from the various sanatoria and come to us because of lack of funds. Personally, we do not favor voluntary cases at all, but on broader grounds believe there should be no time limit on the stay for the following reasons:

The voluntary patients are the most hopeful ones. They come to the hospital anxious for treatment and we should give them all the attention necessary.

Section 99 of the Insanity Law provides they shall not be detained for longer than ten days. We can not commit these patients without breaking faith with them and thereby placing the hospital in a bad

light, as it is agreed that they may leave the hospital after giving due notice. They are at all times under the control of the hospital and if necessity arises can be committed at once.

The difficulty of deciding when a patient would be improved by remaining in the hospital or benefited by discharge is a serious problem and it would, therefore, be better to have an unlimited period than to have a set limit.

Each case should be judged by itself and if, in the opinion of the superintendent, the patient is better off with a voluntary admission, his judgment ought to stand. If we are to accept psychoanalysis as a therapeutic agent, we must of course give voluntary patients a lengthy limit, or destroy the prospects of recovery. Owing to the fact that the statutes guard a patient's interests so thoroughly there can be no objection to this. If a time limit should be designated, it would detract from the present valuable adjunct of the prevention of insanity. Many patients are undoubtedly benefited by the thought that they are voluntarily in the hospital. Were the commitment obtained, the psychic effect would be unfavorable. If improvement does not begin for a period of say one year, it would doubtless lessen the prospects of recovery by adding additional mental stress caused by the patient's knowledge that in the opinion of the staff he is not improving and requires commitment. The institution having the patients could easily overcome that by having them presented at staff meeting, every three or four months, to determine whether further treatment is necessary before discharge can be considered.

If a voluntary patient shows any extreme change, he may be discharged at once. If he is a non-resident patient, the Bureau of Deportation should be consulted.

As to the matter of the expense of commitment at Central Islip, when voluntary patients are to be committed, we call on two qualified examiners from the adjoining hospital at Kings Park, and should they have voluntary patients or others to be committed, they call on us.

Dr. MABON: I want to take exception to one or two statements, namely: that voluntary patients are a detriment to the institution. I think they are an aid. It seems to me the whole thing depends on the admission of the individual, namely, when he comes, a superintendent should go over the case and then determine whether it is a case of down-and-out-of-funds, have an understanding with the patient and relatives of the patient that if at any time it is necessary to commit that patient, the relatives will consent to such commitment. If such procedure is followed, I think there will be no trouble with the voluntary cases. Furthermore, the matter is entirely in the hands of the Commission. They have their medical inspector and if the case is not a suitable one, he can report it and the case can be dealt with as the Commission determines.

Dr. RYON: I agree with Dr. Mabon that each voluntary case ought to be considered by itself. I think in the experience I have had in

the different hospitals that the hospitals are, perhaps, a little too liberal in their interpretation of the voluntary cases. I have found several cases of general paresis admitted as voluntary patients. It does not seem to me that cases of that type, bound to deteriorate, should be received as voluntary cases. I think that primarily those cases whose chances for recovery are favorable, should be received as voluntary patients. I have also found voluntary cases of dementia præcox which were more or less advanced, although at the interview they seemed to appreciate the fact that they were voluntary. Often in these cases, however, I think formal commitment should be made after a short stay in the hospital. In the private institutions it is sometimes difficult to pass on the qualifications of voluntary cases, inasmuch as the institutions suffer from the fact that just as soon as the patient is ordered committed, the relatives wish to remove him. I have tried to be as liberal as possible in that regard. Cases which I might order committed in State hospitals, I have allowed to remain in the private institutions, but have made the recommendation that as soon as the patients give notice to leave the institution, they should be formally certified.

I agree with Dr. Mabon that proper voluntary patients are our best advertisement. I think they recover quickly, and I think the object of the law is to reach these cases early so as to give them the benefit of treatment.

The CHAIRMAN: We will now take up the second subject on the programme, the training of assistant physicians at the Institute. Some of the assistant physicians who have taken the examination for promotion to the grade of senior assistants have complained that they have been discriminated against in that they have not had an opportunity to attend the courses of instruction given at the Psychiatric Institute. The Civil Service Commission has recommended that this matter be taken up for discussion, with a view of determining what system is followed by the superintendents in sending the members of the staff to the Institute. It has been suggested that every member of the staff should, if possible, be allowed an opportunity to take advantage of the instruction offered. The Commission realizes that it is impossible to send any large number of assistant physicians to the Institute at any one time. It is believed that a discussion of this question will result in suggestions for some definite system of instruction of the members of the staffs.

Dr. HOCH: I think before the question of the system which might be adopted is discussed, it is only fair that I should say something in regard to the examinations. I do not think that the statement is quite fair. The examining committee has attempted to formulate and ask such questions at these examinations that the special training at the Institute or elsewhere should not be necessary. On that account, the questions asked have been of a type that any man should answer, who has carefully observed his patients and thought about them, and

who has a knowledge of the nervous system, such as is really indispensable in making any neurological examination. Of course, there is no question that a man has more knowledge after his training at the Institute, (at least, I hope so), but I do not think that it can be truthfully said that a man is discriminated against because he has not been at the Institute.

Dr. HEYMAN: I agree with Dr. Hoch's statement. The examiners should not be criticised for the questions given in the examinations. At Central Islip we have nine senior assistant physicians and I think of that number not quite half have taken a course at the Institute. I have been directed by Dr. Smith to state that in Central Islip, there is no definite system followed in sending men from the staff to the Institute, but he believes some definite system should be established. If the courses of instruction are to be continued at the Psychiatric Institute as they should be for the benefit of the entire service, a definite number of sessions should be planned, or a regular schedule made out in advance, so that plans might be made at the several hospitals whereby the physicians who are to take the course may be spared from their duties. The number of candidates should be apportioned among the hospitals in accordance with the number of acute cases, or the average census, or the size of the staff, so that there will be no injustice to any particular hospital.

The CHAIRMAN: We will take up the recommendations of Inspector Phillips, regarding the methods of purchasing supplies for the State hospitals. The recent inspections made by the inspector of supplies for this department and by the inspectors of the United States Department of Agriculture, would indicate that the thorough discussion of the present method of purchasing supplies is highly desirable at this time. The Commission has sent to each hospital a copy of the reports made by these inspectors regarding condition of meat, butter, eggs and other food supplies. All supplies purchased should comply fully with the specifications used and the contractor should be compelled to furnish products which are fully up to the standard required. Each institution should make every effort to co-operate with the inspector in seeing that all supplies which are not satisfactory in character are promptly rejected. The Inspector for the Commission has made certain recommendations regarding the purchase of supplies which the Commission thinks should receive full consideration by the representatives of all institutions present, and has asked him to make a report at this time so that general discussion of the changes proposed can be participated in by all parties concerned. The various superintendents are expected to make a report regarding the supplies recently rejected.

Owing to lack of space in this number of the BULLETIN, it was found necessary to summarize the proceedings of the conference from this point.

Mr. JOHN M. PHILLIPS, Inspector of Supplies for the State Hospi-

tal Commission, in opening his remarks concerning the purchase of supplies disclaimed any responsibility for the publication of the sensational charges alleging that rotten meat and rotten eggs are being fed to the patients at the State hospitals. The Inspector recommended that wherever possible the purchase of supplies on open market orders be discontinued and that standard specifications be prepared on which competitive bids be requested. He referred to the butter specifications prepared by the New York City departments and stated that in his judgment they were obtaining a more favorable price, the quality of goods considered, than the State hospitals. He stated that the hospitals at times had great difficulty in obtaining butter which complied with the specifications and that rejections were frequent. Mr. Phillips strongly advocated a return to the system of 1911-1912, when the hospitals purchased butter on joint contract from creameries in northern New York during the producing period and stored it in various cold storage plants from which it was withdrawn as required for use. If this plan could not be followed out because of the provisions of the Finance Law, he recommended that standard specifications be drawn up and the contract let by competitive bidding, this to be attended to by the Purchasing Committee.

Mr. HARRY B. WINTERS, Deputy Commissioner of Agriculture, referred to the purchase and storage of butter by the hospitals in 1911-1912 in co-operation with his department. He thoroughly approved this plan and said he believed it offered the best solution of the problem if it could be done under the present laws. He recommended that the institutions be equipped with proper storage facilities so that butter and other supplies could be purchased during the season of production and stored for use.

Mr. NORTON, an inspector of butter for the Department of Agriculture, suggested that a number of institutions join together in the different parts of the State and send out specifications once a month, get prices and inspect the butter offered, buying that which was considered the best value for the price, making a contract on this basis. He stated that this would secure much wider competition and better butter than is now being secured for the same money, as under the present system it is necessary to award to the lowest bidder for the grade. Under his proposed scheme it would be possible to accept a bid other than the low bid, provided, in the judgment of the committee, a better value was offered at a higher price. He stated that his department would be very glad to co-operate with the hospitals in this matter.

Dr. WILLIAM MABON, superintendent of the Manhattan State Hospital, stated that when he was superintendent of the St. Lawrence State Hospital the institution established a creamery where enough butter was made to supply that institution entirely and partly to supply two other institutions. He said the cost was less than of butter purchased in the open market at that time and the quality was

entirely satisfactory. Unfortunately the State was obliged to give up the plant to the original owner who is now conducting it at a considerable profit. He expressed the view that Mr. Norton's plan could not be carried out lawfully, as under the law the contract must be awarded to the lowest bidder.

Mr. NORTON held that a selection of the best value for the money would be in his judgment entirely lawful and would overcome most of the objections to the present system.

Mr. FRANK L. WARNE, steward of the Willard State Hospital, explained the system followed in purchasing butter for that institution. During the producing season, May to September, creamery firsts are purchased on the open market on competitive bids. From November to April a contract is made for creamery extras inspected out of storage. He states that both price and quality have been very satisfactory to the institution and this statement was endorsed by Inspector Phillips. Mr. Warne did not favor the purchase and storage of large quantities by the hospital on the ground that the risk of deterioration in storage would be too great.

Commissioner MAY referred to the purchase of butter two years ago from northern New York creameries for storage purposes and stated that under the present laws it would be impossible to continue this practice. He thoroughly approved this method if it could be done lawfully. He suggested that the proposed purchase on uniform specifications through the Purchasing Committee be discussed thoroughly before taking final action.

Mr. EDWARD S. GRANEY, steward of the Binghamton State Hospital, raised the point that if a specific grade of butter was mentioned in the specifications it would eliminate practically every concern outside of New York City from the bidding because there is no recognized butter exchange elsewhere in the State.

Mr. LEWIS WEBB, steward of the St. Lawrence State Hospital, explained the practice at his institution where they have ample storage facilities. They purchase butter of the local creameries between May 15 and July 1, paying one-half a cent over the Boston market quotations. This purchase is made after the appropriation bill is signed and the method is approved by the Comptroller. It is necessary for the hospital to pay a carrying charge until the money is available October 1st. He stated that this method is very satisfactory both as to price and quality of the butter.

Mr. C. A. MOSHER, steward of the Utica State Hospital, referred to the purchase of butter two years ago. He was a member of the committee which made the contracts. He stated that this butter proved very satisfactory and he believed another contract could be made on a more favorable basis, now that the creamery people understood the matter more fully. As this, however, is impossible under the present finance law, he suggested that a standard specification be made for each hospital and that bids be invited on these specifications, the

quality of the deliveries to be passed upon by the State Agricultural Department. He was positive that purchases by the individual hospitals would produce more satisfactory results and just as low prices as a joint contract by the Purchasing Committee.

Mr. WILLIAM J. MCKEE, steward of the Central Islip State Hospital, stated that the butter purchased two years ago was very satisfactory. He referred to the contract made for the metropolitan institutions last year, and stated that several rejections were necessary and they were not satisfied with that method of purchase. He favored Mr. Norton's scheme so far as the metropolitan hospitals were concerned.

Mr. CHARLES S. PITCHER, steward of the Kings Park State Hospital, favored Mr. Norton's suggestion as to purchase. He stated that his experience last year with the joint contract of the metropolitan institutions was unsatisfactory, although the hospital made a saving of practically \$900.00 on the contract as compared with open market quotations. He stated that the great difficulty was the tendency of dealers to ship a grade of butter a trifle lower than that called for by the specifications. He favored the purchase of butter for short terms, weekly or monthly, in the open market rather than by making contract for a longer period. Generally speaking, he was not in favor of buying butter during the producing season for storage and use as needed.

Mr. WILLIAM L. BUCK, steward of the Long Island State Hospital, Brooklyn, stated that so far as his institution was concerned they were not entirely pleased with the butter purchased in 1912. He stated that it cost his institution fully as much as butter in the open market would have cost, and some of it did not come out of storage in as good shape as expected. Consequently they had to use some butter of rather low grade.

Mr. PITCHER, referring to Mr. Buck's comments, stated that with one exception he considered the quality of the butter purchased in 1912 very good. He had always felt that this butter had cost from a cent to a cent and a half a pound more than it should have cost.

Mr. NORTON called attention to the fact that the butter market for 1912 was exceptional. He showed a chart giving the butter market from 1904 to the present time. On the chart the price of butter during 1912 was shown to be the highest of the whole period. He stated further, that in 1912 he graded the butter and suggested the order in which it be taken out for use. He stated that some of the butter would have deteriorated had it been stored until late in the season. He advised that during the coming year considerable care be taken in making butter contracts because of butter which could be imported from Australia and the Argentine Republic.

Mr. C. L. WEST, steward of the Rochester State Hospital, raised the point that in the New York specifications in a lot of 100 tubs, 25 might be inspected and the whole 100 passed on that inspection and, accord-

ing to the rules of the Mercantile Exchange, a lot of 100 tubs could contain 10 tubs of a lower grade. He advocated that the specifications should be for creamery firsts, each tub to be inspected and to score as a first.

Mr. GEORGE P. WATSON, steward of the Manhattan State Hospital, stated that on the New York Mercantile Exchange the inspector would examine probably 8 tubs out of a lot of 50 and that the balance might all be second quality. The Mercantile Exchange allowance permits 10 per cent of second quality, and unless the specifications require that each tub be guaranteed to grade and score, the hospitals are not likely to get what they pay for. He also stated that there was some difficulty in securing prompt inspection by the Department of Agriculture because of the insufficient force of inspectors at their disposal. He favored Mr. Norton's suggestion provided every tub of butter is inspected and sealed before being shipped to the institutions.

To summarize briefly, Mr. Phillips recommended the purchase by the Purchasing Committee on standard specifications of a butter supply for a year for all the hospitals. Mr. Norton advocated the purchase from month to month as required, bids to be asked on a specified grade and a selection to be made of the best value offered, quality considered.

The CHAIRMAN stated that there were two questions to be voted upon. The first was whether the conference favored the purchase of butter on uniform specifications. The vote on this question was unanimously in favor. The second question was whether the conference favored the making of a joint contract by the Purchasing Committee for a year's supply of butter. There were no votes in favor of this proposition.

Mr. PHILLIPS submitted to the conference his recommendations regarding the purchase of eggs. He referred to the 1913 contracts of the New York City Department of Correction and read the specifications. He made the same recommendation as for the purchase of butter, namely, that standard specifications be prepared for eggs and that the Purchasing Committee make a joint contract for a year.

Commissioner MAY stated that under the Finance Law as interpreted by the Comptroller it would be impossible to make such a contract. He stated that a similar plan had been rejected by the Comptroller within a short time previous. He thought it would be well to discuss the question and if the conference was in favor that an effort be made to secure an amendment to the Finance Law.

Dr. E. H. HOWARD, superintendent of the Rochester State Hospital and Chairman of the Purchasing Committee, suggested that there were two questions before the conference, the one as to whether there should be uniform specifications for eggs and the other as to whether there should be a joint purchase by the Purchasing Committee for a year.

Mr. WARNE gave the experience at the Willard State Hospital in

the purchase of eggs. He buys in the open market during the height of the egg producing season. April, May and June, as required for immediate needs of the institution. He then buys and stores in the hospital cold storage plant a supply sufficient to last until the end of the fiscal year. A contract is then made on the basis of competitive bids for a supply of storage eggs for the six months beginning October 1, these eggs to be inspected at the cold storage and to comply with the specifications in every particular. He was not in favor of a contract for a year.

Mr. MOSHER stated that if the Finance Law would permit he believed the best method would be to purchase eggs in the spring and store them in sufficient quantity to meet the hospital needs for a year. He was opposed to making a general contract for a year, especially for the up-State hospitals as he believed better eggs could be purchased locally and stored by the hospitals.

Mr. PHILLIPS stated that he favored this plan for the up-State hospitals where eggs could be procured directly from the producer and where storage facilities were available. In the metropolitan hospitals he advocated a yearly contract on standard specifications.

Mr. WEBB stated that at Ogdensburg they had a storage plant of sufficient capacity to store a year's supply of butter and eggs and found they could save money by doing this and the quality was superior to storage eggs purchased in the open market. He expressed the view that every institution should have a cold storage plant of sufficient capacity for this purpose. He further stated that in purchasing eggs and butter he had to arrange to pay a carrying charge until the first of October when the appropriation became available. A number of those attending the conference raised the point that this procedure might be interpreted as in violation of the Finance Law, but Mr. Webb stated that it had been done with the Comptroller's approval.

Mr. GRANEY expressed the view that the prices for the New York City departments, quoted by Mr. Phillips, were somewhat higher than the prices paid by the Binghamton State Hospital for two years past. Mr. Phillips stated that while this might be true the quality of eggs in his judgment averaged better than those used at the State hospitals.

Mr. MOSHER objected to a standard specification for eggs because this would tend to shut out the purchase of eggs from the local producer or gatherer, who would not be likely to guarantee to meet any specification. He was in favor of a standard specification for use in the fall and winter but not for the early summer months.

Mr. NORTON stated that a Chinese firm had offered a prominent New York house a shipment of fresh Chinese eggs at \$5.20 per case weighing from 50 to 58 pounds per case.

The CHAIRMAN read the specifications for eggs prepared by the Purchasing Committee, as follows:

All eggs purchased by the State hospitals shall be wholesome, sound, reasonably clean, of good average size, good bodied and sweet, in standard cases of 30 dozen each.

All eggs delivered under these specifications shall be candled by the contractor and there shall be no eggs in any delivery known as salt, cracked, cloudy, weak, rots or spots.

In the event of a dispute between the contractor and the hospital as to the quality of deliveries, final determination shall be had by an inspection of the deliveries in question by an inspector for eggs in the State Department of Agriculture whose decision shall be final. The expense of such inspection shall be borne by the party adjudged at fault by such verdict.

The possibility of purchasing eggs locally on such specifications was considered. Mr. Mosher stated that it would not be possible to do this. He stated that the eggs purchased of farmers and egg gatherers were of very good quality. They were always candled and deduction made for any bad eggs that might be found.

Mr. WEST suggested that it would be possible to purchase eggs under the specifications and to have the eggs candled on purchase and deduction made for any bad eggs found.

Mr. PHILLIPS stated that the only proper way was to reject the whole delivery if any bad eggs were found. Mr. West held that there were bound to be at least a few bad eggs in any delivery of any size but that if they did not pay for such eggs the delivery could be considered as all good eggs. In any event it is necessary to candle every egg to make sure that the delivery is what the specifications require.

Mr. WINTERS stated that each institution should candle its own eggs. He stated that the Department of Efficiency and Economy assisted in the preparation of the proposed specifications for eggs and that it was believed, if adopted, these would result in a better grade of eggs being furnished the hospitals. He stated that, if the specifications were adopted the hospitals must expect to pay more money for their eggs. Mr. Phillips insisted that if any shipment, no matter how large, contained any bad eggs it should be at once rejected.

Commissioner MAY suggested that the specifications be discussed very carefully before taking final action, so that there would be no possibility of handicapping some of the hospitals in this matter.

Mr. GEORGE R. FINTON, steward of the Hudson River State Hospital, stated that the specifications, while all right, seemed to be drawn up with a view that every egg delivered shall be a perfect egg. He gave his opinion that there is no such thing as a perfect delivery of eggs, that any shipment of any size must contain at least a few eggs below specifications. He believed the specifications, if adopted, would greatly increase the prices the hospitals were paying for eggs. Mr. Warne expressed himself as thoroughly in accord with this view, and warned against making the specifications so technical that they would prove impracticable. He stated that in his judgment no firm

in the country would take a contract guaranteeing to deliver a large quantity of eggs in which not one egg below the specifications would be found; that if the eggs were candled by the hospitals and deductions made for those not found up to specifications he believed the interests of the institutions would be fully safeguarded. Any attempt to insist on such a strict interpretation of the specification would result in a great increase in price, in his judgment. He stated that eggs not up to specifications have been delivered at the Willard State Hospital and have been rejected. He also stated emphatically that every egg found not up to specifications was rejected and deduction made on the voucher before payment. He held that there would be considerable risk in the hospital storing a year's supply of eggs because there is always a chance of deterioration in storage.

Mr. WINTERS expressed the opinion that no firm would enter into a contract to supply a large quantity of eggs and absolutely guarantee the quality of every egg on penalty of rejection and return of the entire shipment. If it were possible to find such a contractor, he felt sure the price would be raised sufficiently to cover any possible loss.

Mr. WATSON stated that the specifications used by him in the past year were practically those suggested by the Purchasing Committee. All eggs are candled at the hospital. When a new shipment is received a few cases are candled and if any number of eggs below specifications is found the entire shipment is rejected. He believed this plan had given them the best eggs they had ever used, but was not sure it would apply to the up-State hospitals where expert candlers are not so easily obtained as in New York City.

Mr. GRANEY asked whether it would not be well to consider the specifications of the New York Mercantile Exchange, which are well known in the trade. Mr. Pitcher stated he had used these specifications and did not approve them for the reason that they allow 35 per cent of eggs of the lower grade. In candling a recent shipment of fifty-three cases the hospital found three or four rotten eggs to the case. The contractor was required to candle the entire shipment and about twenty dozen poor eggs were candled out and rejected.

Dr. MABON stated that when he was general superintendent of Bellevue Hospital the specifications of the New York Mercantile Exchange were used, and were later canceled by the Board of Managers as unsatisfactory.

A discussion was had regarding the methods of candling and testing eggs and the advisability of rejecting an entire shipment if any number of eggs below specifications is found. Mr. Winters stated that it is well known in agricultural circles that experts will disagree in their findings when inspecting the same lot of butter or eggs, if the lines are drawn too sharply. He stated that two inspectors testing the same lot of butter unknown to each other will almost never agree in the scoring, and the same was true to a large extent in the candling of eggs.

Mr. FINTON stated that if the hospitals were required to candle every egg it would mean the permanent employment of an expert candler and would raise the price of the eggs materially.

Mr. WATSON said that his hospital uses fifty-five cases of eggs weekly. He and the chef candle about ten cases out of the lot soon after delivery. If they do not find any quantity of eggs below specifications no further examination is made until the eggs are delivered to the kitchens. On the other hand, if any number of bad eggs is found the whole shipment is rejected. When eggs that have not been candled are sent to the kitchens a deduction is made for any found bad after breaking. He stated that some times bad eggs are delivered at the hospital and, on the other hand, they have had deliveries where every egg was good.

The CHAIRMAN called for a vote on the adoption of the specifications recommended by the Purchasing Committee.

Mr. MOSHER offered as an amendment that the hospitals in the sections of the State where eggs may be bought locally from farmers and gatherers in the spring be excepted and that these specifications shall apply only to contract eggs. This amendment was adopted by the conference unanimously. The original specification as amended was then unanimously adopted. A vote was taken as to the wisdom of rejecting the entire shipment in case any bad eggs are found, and this proposition was rejected by the conference.

The CHAIRMAN then put the question as to whether the Purchasing Committee should make a joint contract for eggs for as long a period as the Comptroller will permit. This proposition was defeated by the conference on a rising vote.

The conference then discussed the imported beef being delivered on the present contract. Inspector Phillips expressed the view that the imported beef is better than that previously purchased by the institutions. Mr. West concurred in this statement, saying that it cooked up more tender than the native beef and all that had been delivered to the Rochester State Hospital had been well fattened and well meated.

Dr. CHARLES G. WAGNER, superintendent of the Binghamton State Hospital, stated that they had been a little unfortunate with the Argentine beef. A part of the first shipment was so bad they thought it should be rejected and Inspector Phillips concurred in this view. The contractors made considerable objection, other inspectors were called in and finally part of the shipment was retained, the rest being rejected. Dr. Wagner was not entirely satisfied with the imported beef as there was always evidence of age, which necessitated considerable trimming in cutting up the meat. From very careful tests on both hind and fore quarters of imported and domestic beef of approximately the same size it appeared that 346 pounds of imported beef costing \$39.68 produced 207 pounds of edible beef at a net cost per pound of 19.1 cents. Three hundred forty-eight pounds of domestic

beef cost \$43.43. This produced 251 pounds of edible beef at a net cost per pound of 17.3 cents. From this experiment he argued that the Argentine beef was actually more costly than the domestic beef. Mr. Phillips did not agree with this conclusion.

Mr. PITCHER stated that his experience with the imported beef had been very satisfactory, and he thought that it was better fatted than native beef at this time of the year. He recommended that the specifications be amended so as to increase the maximum weight of the carcasses, as the heavier carcasses show a less percentage of fat and the meat is of better quality.

Mr. WEST stated that perhaps the imported beef was more tender because of the fact that it had been stored a longer time, and that if the native beef were stored as long it might be equally as tender.

Mr. MCKEE stated that the imported beef was very satisfactory. He favored Mr. Pitcher's suggestion that the weight of the carcasses be increased.

Mr. BUCK stated that there was some loss in weight from the imported beef because of the dripping of the juice. They find the meat more tender than the domestic beef but there is some more waste because of the fat.

Mr. WEBB stated that the imported beef had been very satisfactory at the St. Lawrence State Hospital.

Mr. JOHN E. CULP, steward of the Buffalo State Hospital, said that at Buffalo the first three deliveries of imported beef had been rejected. After the second delivery it was necessary to purchase in the open market to meet daily needs. The third delivery was rejected by the Inspector of Supplies. The fourth delivery came up to specifications. He did not consider the meat as good as domestic beef; it was coarser and not so well fatted and the meat is not so well distributed over the bones. The weights also are not as advantageous as those of domestic beef. The last two deliveries at Buffalo State Hospital had been domestic beef of very fine quality, the contractor having given up the attempt to deliver suitable imported beef.

Dr. HOWARD stated that the purchase of Argentine beef was an experiment on the part of the Purchasing Committee, and asked for a candid expression of views by each hospital as to the wisdom of continuing the use of imported beef. Attention was called to the fact that the saving in price over the same quantity of domestic beef for the quarter would be about \$16,000.

Mr. MOSHER raised the point that there might be difficulty in delivering the imported beef to the up-State hospitals in satisfactory condition during the hottest part of the summer.

Dr. MABON stated that after interviewing a meat dealer he was of the opinion that the contract for imported beef should be continued as indications were that domestic beef would be very high in price.

Dr. HURD called attention to the fact that with one exception the institutions which preferred the imported beef were those in easy

reach of New York City, where the beef could be delivered with very little delay from the ship.

A vote was taken by institutions as to the preference for domestic and imported beef, with the following result:

Utica	Domestic.
Willard	Domestic.
Hudson River.....	Imported.
Middletown.....	Domestic.
Buffalo	Domestic.
Binghamton	Domestic.
St. Lawrence.....	Imported.
Gowanda.....	Domestic.
Mohansic.....	Not voting.
Kings Park.....	Imported.
Long Island	Domestic.
Manhattan	Imported.
Central Islip.....	Imported.

Commissioner MAY summarized briefly the financial situation so far as facts were obtainable. He stated that apparently only \$215,000 would be available for new construction for the coming year and that it was understood the reappropriation of board moneys in the Supply Bill had been considerably reduced. He stated that as soon as definite information was available the institutions would be promptly notified.

An informal discussion was had regarding the statements appearing in the public press as to conditions found by Federal Inspectors Buckley and Snyder during their inspections in March. Several of the superintendents and stewards gave brief informal statements relative to the inspections at their institutions and stated that formal written reports had been transmitted to the Commission.

Mr. EVERETT S. ELWOOD, assistant secretary of the State Charities Aid Association, stated that his association had always taken great interest in the welfare of the State hospitals for the insane and had been represented for years by official visitors to the State hospitals. He expressed his astonishment at the gravity of the charges made by the Federal Inspectors, in view of the uniformly favorable reports made by their official visitors, and stated that his association would immediately take steps to have a careful investigation made under its own auspices. To this end he asked that his association be furnished promptly by the Commission and the institutions with all available particulars regarding the matter.

Dr. WILLIAM L. RUSSELL, superintendent of the Bloomingdale Hospital, called attention to a too general disposition to make sweeping charges against the State hospitals on an insufficient and inadequate foundation. He stated that his long connection with the State hospital service had made him familiar with the workings of the sys-

tem, and that in any large institution where supplies are received in considerable quantities goods of unsatisfactory quality are at times delivered and have to be rejected. He stated that this has happened as well at Bloomingdale since he has been at the head of that institution, and felt that the charges when thoroughly investigated would be shown generally to have inadequate foundation in fact. He expressed his conviction that the reports of Mr. Phillips and of the inspectors who accompanied him should be in substantial agreement, and was surprised that Mr. Phillips refused to assume responsibility for reports made by the Federal Inspectors working under his direction and largely in his presence.

The Chairman of the Commission announced that a thorough, painstaking and careful investigation would be made in an impartial effort to get at all the facts available.

There being no further business, the conference adjourned.

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TABLE OF CONTENTS

	Page
1. "The Treatment of Syphilis of the Nervous System in the Frankfurt and Hamburg Clinics," by Fred J. Conzelmann, M. D.,	309
2. "Preliminary Report of a Higher Scale of Mental Measurement," by A. J. Rosanoff, M. D.,	318
3. "A Critical Digest of Some of the Newer Work Upon Homosexuality in Man and Woman," by L. Pierce Clark, M. D.,	328
4. Report of Inter-hospital Conference at Buffalo State Hospital, November 18-19, 1913,	387
"Combined Psychoses," by George W. Gorrill, M. D., discussion of	387
"Cyclic Dementia Præcox,"	388
"Temporary Manifestations of Paranoid Symptoms," by Robert King, M. D., with discussion,	388
"A Consideration of the Prognosis of Dementia Præcox with Report of Cases Discharged Recovered," by Christopher Fletcher, M. D.,	389
Discussion of Dr. Fletcher's paper,	390
"Father Complex," by Dr. Helene Kuhlmann, discussion of,	392
5. Report of Inter-hospital Conference at Central Islip State Hospital, December 16-17, 1913,	393
"Alcoholism and Manic-Depressive Insanity," by G. C. H. Burns, M. D.,	393
"Fifteen Cases of Aphasia," by August Hoch, M. D., described,	400
"Two Clinical Cases of Aphasia," by G. W. Mills, M. D., demonstrated,	400

"Aphasia and Apraxia," by W. N. Barnhardt, M. D., notes of,	400
"Report on Pathological Material with Special Refer- ence to the Significance of the Cellular Elements in the Meninges in Various Acute and Chronic Reactions," by C. B. Dunlap, M. D.,	404
"The Occurrence of Convulsions in Dementia Præ- cox, Manic-Depressive Insanity and the Allied Groups," by T. W. Simon, M. D.,	407
Discussion of Dr. Simon's paper,	414
"Lumbar Puncture Findings in Epilepsy," by W. A. Conlon, M. D.,	420
"A Case Showing Symptoms of Central Neuritis, with Recovery," by David Corcoran, M. D.,	420
"On Certain Causes of Exhaustion with Nephritis and Acetonuria found in the Insane, and their Treat- ment, by R. G. Wearne, M. D.,	424
6. Minutes of Quarterly Conference, September, 1914,	425
"Recommendations Regarding Manufactures and Industries," by Moses Ettinger, with discussion,	426
Discussion of the Advisability of Transferring Internes from the Non-Competitive to the Competitive Class,	431
"Recent Progress in Psychiatry," by August Hoch, M. D.,	436
Remarks by Mr. Stanley J. Quinn, in regard to Appro- priations, with discussion,	436
Discussion of Transfers from the Rome State Cus- todial Asylum to the State Hospitals,	436
Discussion of Finances for the Coming Year,	440
Remarks of Hon. John A. Delaney on the System of Accounting in Use at the State Hospitals, with discussion,	445
Report of Purchasing Committee,	448
Report of Committee on Statistics and Forms,	450

THE TREATMENT OF SYPHILIS OF THE NERVOUS SYSTEM IN THE FRANKFURT AND HAMBURG CLINICS.

BY DR. FRED J. CONZELMANN,
Assistant Physician, Manhattan State Hospital.

To the American clinicians the effective measures of the salvarsan treatment of luetic affections is well known. The purpose of this paper is to discuss briefly the methods employed in the two representative clinics in Germany—the Dreyfus Clinic at Frankfurt, and the Nonnes Clinic at Hamburg.

The Dreyfus Clinic is located in Frankfurt, where the first idea of salvarsan was conceived; here the great master Ehrlich visits the clinic and renders individual supervision and offers suggestions. Hence Dreyfus, unlike other clinicians, has the advantage of receiving invaluable assistance from Ehrlich's laboratory.

One is impressed with the well planned and orderly arrangement of the clinic. The feature that stands out most prominently is that Dreyfus does not treat the patients as merely cases but as individuals; this is especially noticed in his methods of treatment in the various forms of syphilitic nervous diseases.

He first selects the type of the disease; secondly, gives the intensive treatment of salvarsan and mercury; thirdly, adapts the dose of salvarsan or mercury to the individual, and is guided by the constitutional reaction; and fourthly, the treatment is continuous with definite periods of intermission.

Ehrlich and Dreyfus prefer old salvarsan to neo-salvarsan, and use the latter only on certain indications, especially when a mild non-irritating action of salvarsan is desired; nevertheless the initial treatment is frequently begun with neo-salvarsan.

The concentrated solution of salvarsan was always used and was prepared as follows:

The dose of old or neo-salvarsan was dissolved in 35 c.c. of double distilled water; then the sterile sodium hydroxide

solution was added and the whole quantity injected with the syringe directly into the vein.

Patients suffering from syphilitic affection of the nervous system soon after the primary infection are, as a rule, strong, robust individuals, and can tolerate a much larger dose than those individuals in whom the infection has been present for many years.

A searching physical examination of the patient precedes every course of treatment with salvarsan. In fact, it determines the final treatment. If the patient suffers from stomach disease, a thorough stomach analysis is made, and the condition is treated before the salvarsan treatment is started. In some patients who are young and robust, salvarsan alone is administered. In cases about 60 years of age, salvarsan is given with a great deal of care, and in cases above 70, no salvarsan is administered, except upon very good indications that the patient may be benefited and not be harmed by it.

In cases with tuberculosis, chronic heart disease, or nephritis, the pros and cons were carefully gone over. No patient with fever of 38 degrees centigrade is given any form of anti-syphilitic treatment. Tuberculous patients without fever receive small doses of soluble mercurial salts by injection, and neo-salvarsan intravenously, as that is borne much better than old salvarsan. Severe cases of heart disease receive a preliminary course of mercurial treatment for two weeks: after that small, gradually increasing doses of neo-salvarsan are administered. In cases of nephritis, neo-salvarsan is used and no mercury.

A course of treatment lasts six or eight weeks. During this time the patient receives from three to six grams of old salvarsan, or four and a half to nine grams of neo-salvarsan, with six to twelve mercurial injections of 0.02 to 0.05 c.c. of a 40 per cent calomel solution, or the same dose of some specially prepared oily solution of mercury. The oily solution of mercury never produces the local reaction which frequently occurs from the calomel injections. The injections of mercury are preferred on account of their more rapid effect; inunctions are thought to have an unfavorable

influence, especially on cases with weak hearts, on account of the mechanical force used in rubbing the mercury on the skin.

Patients after receiving a dose of salvarsan intravenously are kept in bed for twenty-four hours; if, at the end of this time, there is no feeling of illness nor rise of temperature, patients are permitted to be out of bed. Two examinations of urine weekly are considered imperative.

After the physical examination of the patient has been completed—this includes the lumbar puncture, Wassermann test of blood and spinal fluid—the diagnosis of the stage of the disease is agreed upon, and a carefully planned systematic course of treatment is begun.

EARLY BRAIN SYPHILIS.

The approximate outline of the course of treatment of early brain syphilis is as follows: A course of mercurial treatment consisting of five injections of 0.02 to 0.05 c.c. of 40 per cent calomel solution every third day. If, at the end of this time, the patient shows no febrile reaction to the injections of mercury, the injections of salvarsan are then started. The mercury injections are continued every third day, and a concentrated solution of 0.15 grams of neo-salvarsan is injected directly into the vein with a syringe. If this dose produces no reaction, the patient receives a second dose of 0.3 grams on the following day; and if no untoward symptoms develop, he receives 0.45 on the third day and 0.6 on the fifth day. This is continued every other day until the patient has received one and a half to two grams of neo-salvarsan. Dreyfus begins to treat with old salvarsan, generally starting with a small dose 0.1, and never going beyond 0.4 of old salvarsan. The dose is repeated every second day. If at any time during the treatment the patient has a febrile reaction after the injection, the treatment is discontinued and is not begun again until the patient is free from fever for at least two days.

The use of neo-salvarsan is preferred at the beginning in early brain syphilis because it rarely produces the febrile reactions of old salvarsan. When old salvarsan is used in

the beginning, the temperature frequently is excessively high, and sometimes the patients are delirious from eight to twelve hours. The total amount of old salvarsan given in the course of six or eight weeks is from four to five grams. If the patient consents to take two courses of treatment, he receives in the course of four months, six to eight grams of old salvarsan and two to three grams of neo-salvarsan.

In those cases which stay four months the Wassermann test is, as a rule, negative in the blood and fluid, and globulin and cell count are also negative.

The patients who take but one course of treatment have generally a positive Wassermann in the fluid, the globulin is slightly positive, and the cell count is diminished to one-half or one-third. These patients are always advised to return for a second course of treatment in two or three months.

The prognosis in early brain syphilis is made favorable; in fact, a positive cure is promised to all who return for re-examination and take the treatment, if the physician advises it and considers it imperative.

Cases who leave the hospital with a positive Wassermann in the fluid, slightly positive globulin, and only slightly diminished cell count, frequently return at the end of two or three months, complaining of eye symptoms, deafness, and some facial palsy.

The Wassermann test, cell count and globulin reaction are the index of the success of the treatment. If a case, after one course of treatment has a negative Wassermann, negative cell count and globulin, a second course of treatment is not advised.

LATE STAGE OF CEREBRO-SPINAL SYPHILIS.

The majority of the cases in the Dreyfus clinic are of this type, and the prognosis is generally favorable for improvement but not for cure. After a thorough physical and serological examination the patient is allowed to rest in bed for two or three days without therapy; he then receives three mercurial injections, one every other day; after the third injection, the treatment is begun with old salvarsan and continued every other day for the six or eight weeks. The

total amount of salvarsan given intravenously averages four or five grams.

There are two classes of this kind of cerebro-spinal lues: one class shows a negative Wassermann in the fluid and negative serological findings; these cases, though favorably influenced by the treatment, do not show the remarkable improvement of the other class with positive Wassermann in the fluid and positive serological findings. In the first class it is thought that the disease has become stationary, with an irreparable anatomical defect, while the second class is considered as active syphilis with recoverable pathological lesions. Among the second class, hemiplegias, spastic paralysis, paresthesias, deafness, oculomotor symptoms, headaches and dizziness—all may disappear during the course of treatment.

TABES CASES.

In tabes cases, Dreyfus always treats the patient with salvarsan alone for three weeks, giving one injection of salvarsan of 0.1 to 0.2 grams every day. At the end of three weeks he combines the treatment with mercury.

In tabes cases he always exercises great caution in selecting the mercurial preparation, for he has frequently found that the patients show a marked intolerance to some mercurial salts and not to others. As a rule, he prefers mercurial inunctions in cases of tabes, but often uses the mercurial salicylate.

With this form of treatment the patients improve rapidly, gastric and lancinating pains disappear, the ataxia and visceral symptoms improve; the tabetic cases with a negative Wassermann in the fluid, also show improvement with this form of treatment.

The tabetic cases are always emphatically advised to take a course of treatment every three months till four courses are taken, and in general it is thought several courses of treatment are necessary to obtain any marked improvement.

TREATMENT BY MODIFIED SWIFT-ELLIS METHOD.

We may here state that whenever a lumbar puncture was made, either for the purpose of diagnosis or for the purpose

of treatment, the patient was invariably made to lie flat on his back for twenty-four hours.

In the intraspinal administration of salvarsan, Dreyfus uses Gennerich's modification of the Swift-Ellis method. He dissolves 0.15 grams of neo-salvarsan in 300 c.c. of sterile salt solution. Of this solution 5 c.c. are injected intraspinaly after the withdrawal of an equal quantity of spinal fluid. His results in initial lues cerebri are very encouraging. In several cases the Wassermann in the fluid, the globulin and cells are negative after two or three treatments. The dose is repeated every three weeks.

In the intraspinal treatment of tabes the results are rather symptomatic but nevertheless very striking, as in some cases the gastric crises and lancinating pains have disappeared and bladder control is regained. The ataxia improves, but the physical signs, such as Argyll-Robertson pupils, absent knee-jerks, and breast anesthesia, remain. In one case there was a remarkable improvement in the feeling of numbness that the patient had in his feet. The disadvantage of this method of treatment is the great pain and discomfort that it frequently causes the patient. Fever, pains in the limbs, vomiting, headaches and dizziness are frequent symptoms after the treatment.

The tendency of Dreyfus is to use the intravenous method of the administration of salvarsan, and in this way he hopes to obtain a complete destruction of the spirochetes.

Dreyfus has no cases of general paresis on his ward.

Since February, 1914, Dreyfus has used two new preparations of salvarsan from Prof. Ehrlich's Laboratory. The one is copper salvarsan, the other sodium salvarsan; both can be readily dissolved in water, and do not entail the manipulation required in the preparation of old salvarsan. The solutions are given in concentrated form directly into the vein with the syringe. With this mode of administration three or four cases can easily be treated in the course of half an hour.

No report of the new preparations of salvarsan has been made as yet by Prof. Ehrlich. The only advantage claimed

in the clinic is its easy method of preparation for administration.

In the Dreyfus clinic a great spirit of optimism prevails which leaves no doubt in one's mind as to his successes in the treatment of syphilis of the nervous system with salvarsan.

No such optimism exists, however, in Prof. Nonnes' clinic in Hamburg. He is of the opinion that there is more confusion in the treatment of syphilis than there has been at any other time. Nevertheless, there is also no want of desire to try every scientific method suggested.

In Nonnes' clinic every patient admitted suffering from syphilitic or meta-syphilitic disease of the nervous system receives a course of mercurial inunctions irrespective of the stage of the disease. Generally the patient receives an inunction of four grams of mercurial ointment daily for five days. The sixth day is for bathing and cleaning, and the seventh a day of rest. Four weeks of inunction are called a course of treatment.

Nonne has a clinic of 250 to 300 patients, 75 per cent of whom suffer from some form of syphilitic disorder of the nervous system.

For purpose of treatment he has his cases of *tabes* divided into groups: One group receives mercury inunctions; another group mercury inunctions and intravenous injections of salvarsan; a third group mercury inunctions plus intraspinal injections of salvarsan; and a fourth group receives no treatment whatsoever.

In cases of general paralysis he uses the mercurial inunctions and intraspinal injections of salvarsan; in the cerebral lues cases he prefers to give mercurial inunctions with intravenous injections of salvarsan.

Nonne employs Von Schubert's modification of the Swift-Ellis method. In this method he withdraws 3 c.c. spinal fluid, and dissolves in it a dose of neo-salvarsan (0.045 grams). Two-tenths of this solution is dropped into the spinal fluid which has been allowed to run into a glass retainer, the retainer being connected by a rubber tube to the puncture needle. This fluid, which now contains 0.003 neo-salvarsan, is then allowed to run back into the canal by

gravity. By this method he rarely has the symptoms of fever, pain, discomfort, and distress with which Dreyfus has so frequently to contend in using Gennerich's method. With this means of treatment many patients who are suffering from cerebral lues are cured, many improve, few remain unchanged, and some become worse.

In his tabes cases Nonne gets, with the intraspinal treatment, symptomatic improvement; pains and numbness disappeared, gastric crises were not nearly so frequent after the treatment, and bladder symptoms were commonly improved. In some cases however the bladder symptoms were very much worse after the treatment. In two cases the gastric crises returned after a month.

With his cases of general paralysis Nonne claims symptomatic improvement: In some cases the speech defect improved, the Romberg symptom became less, facial palsy became better; some who were unable to walk could go out and walk with a cane; some became mentally clearer; some who had been restless and disturbed became quieter; and one who had been tube-fed began to eat. Besides the usual examination of serum and Wassermann tests of blood and fluid, Nonne always employs the luetin test of Noguchi, not so much for aiding the diagnosis of the disease but rather as a means of diagnosing a cure of the disease, for if the luetin test is negative at the end of the course of treatment the case is considered cured.

In looking over the cases I have seen, I find that the treatment did a great deal of good; many cases of cerebral syphilis were cured, some improved, and in tabes and general paralysis symptomatic improvement followed, as a rule; only a few cases remained the same or became worse. Inasmuch as these last two diseases have formerly led to but one end, one may be justified in taking a chance with this form of treatment, as it certainly promises some relief.

In all these treatments it is noteworthy that in some cases two or three doses accomplish the same results as ten or fifteen and even twenty doses in other cases. In some cases it is impossible to obtain a negative Wassermann test after a long course of treatment. A negative Wassermann in

the blood gives no information concerning the nervous system. The Wassermann in the fluid is the only index of the progress of the disease. The Wassermann may remain positive, and the globulin and cell count negative, or vice versa.

In Nonnes' clinic it was interesting to see his method of investigating cases. If a mother or father came to the hospital and the Wassermann test was found to be positive, the whole family was examined; it was not at all infrequent that a family with four or five children came to the hospital, had the Wassermann test made on the blood and the lumbar puncture performed to make a serological examination. If the family did not come to the hospital one of the assistants went to the home and made the examination there, if the family consented. Not only were the immediate members of the family examined, but if grandfathers and grandmothers were alive they were prevailed upon to have a blood examination made, and if he could persuade them he also made the lumbar puncture. In this way he collected cases where syphilis could be traced back three and four generations.

PRELIMINARY REPORT OF A HIGHER SCALE OF MENTAL MEASUREMENT.

BY A. J. ROSANOFF, M. D.,
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One of the great needs of practical psychiatry is that of standardized methods of mental measurement. For some such methods a debt of gratitude is already due to psychologists; but our experience in their application has gradually led us to realize that the standards which have been developed and made available do not take sufficiently into account environmental influences. It has been too readily assumed at times that a difference in the showing of two subjects is necessarily to be attributed to a difference in native mental capacity.

It will be granted, of course, that to provide a satisfactory correction of the error due to the variable influence of environment would be a difficult matter; but it has occurred to us that the difficulty might be materially reduced by confining our proposed tests to a selected sphere of knowledge or activity in relation to a corresponding and readily measurable *sample* of the environment, so to speak, rather than to the environment as a whole.

To take a concrete example, we could perhaps form a more useful practical judgment of the aptitudes of a printer's apprentice by considering the speed and accuracy with which he can set up a page of text in relation to the length of his apprenticeship, than we could by applying a series of tests of general intelligence and then attempting to correct the results by somehow taking into account the sum total of his general environmental influences.

Assuming that this is so, then in order to develop a generally applicable method it is necessary before all to choose a readily measurable "sample" of environment which would affect, more or less markedly, all or at least a great majority of possible subjects. We say choose, but the fact is there is hardly any choice in the matter, for only

one general environmental element has been in any degree standardized, only one is at least roughly measurable, namely, the element of systematic education. In spite of some variation of standards in different countries or in different parts of any country, everyone appreciates the differences between such magnitudes as "no education", "grammar school education", "high school education", and "collegiate education", or their equivalents.

In speaking of the element of education as a measurable environmental influence in this connection we do not mean such vague, though important, parts of it as scholastic atmosphere, refining influences, incidental associations; these factors, being variable and hardly measurable, must not be allowed to affect the results; we mean only the process of the actual imparting of knowledge, and preferably that knowledge which is more or less basic or theoretical, and not that with which one comes in touch in extra-scholastic life.

Having the above considerations in mind, our special problem became to develop a simple method whereby a subject's mental capacity might be estimated from a measure of what he has acquired in the course of his education, and from a comparison of his acquisition with the average of a sufficiently large group of subjects of the same degree of education.

Our experience with free association tests has led us to believe that just such a test, applied by means of a properly selected list of stimulus words, would best serve our purpose, owing particularly to the great simplicity of the procedure and to the readiness with which the results may be classified and standardized.

In selecting the stimulus words we were guided, in the first place, by the usual curricula of schools of all grades, comprising the subjects of arithmetic, grammar, geography, history; algebra, geometry, physiology, literature, civics; trigonometry, physics, chemistry, biology;—and we were further guided by the aim of revealing in each instance the presence or absence of a familiarity with the school-subject concerned, yet such a familiarity which is not

likely to be acquired otherwise than in the course of systematic education. The list of words finally selected is as follows :

1 geography	26 osmosis	51 binomial	76 continent
2 participle	27 percentage	52 crustacean	77 spore
3 Waterloo	28 cerebellum	53 Bonaparte	78 theorem
4 refraction	29 fractions	54 meridian	79 Himalaya
5 arithmetic	30 titration	55 chlorophyll	80 Renaissance
6 botany	31 carbohydrate	56 tetrahedron	81 quotient
7 isomerism	32 duodenum	57 Madagascar	82 oxidation
8 Portugal	33 cosecant	58 corolla	83 haemoglobin
9 amoeba	34 biology	59 ventral	84 axiom
10 declension	35 Odyssey	60 Belgium	85 Amazon
11 burette	36 vertebrate	61 tangent	86 isosceles
12 physics	37 gravimetric	62 dorsal	87 cohesion
13 hyperbole	38 federal	63 colloid	88 protoplasm
14 retina	39 morphology	64 equator	89 centrifugal
15 coagulation	40 hypotenuse	65 judiciary	90 molecule
16 Cervantes	41 Magellan	66 synthesis	91 cotyledon
17 franchise	42 hexameter	67 Athens	92 abscissa
18 subtraction	43 meteor	68 epithelium	93 gravitation
19 metabolism	44 momentum	69 feudalism	94 galvanic
20 predicate	45 Cornwallis	70 coefficient	95 logarithm
21 mollusc	46 protozoon	71 perennial	96 calyx
22 inquisition	47 syntax	72 plebeian	97 polarization
23 amphibious	48 distillation	73 catalytic	98 cephalic
24 decimal	49 pollen	74 embryo	99 proteid
25 hydraulic	50 peninsula	75 spectrum	100 kinetic

Our plan is to collect, in the first place, a large number of test records from subjects of at least full collegiate education, and, in the second place, a similar mass of material from groups of subjects of various degrees of education less than that represented by a full collegiate course, all this material being intended to serve for the development of a series of standards representing a descending scale of values. Of course, until this has been accomplished it would hardly serve any useful purpose to apply the test to cases of insanity or allied mental anomalies, although thus to apply it is our ultimate special object.

We have as yet but a small amount of material,—something over one hundred test records.* From amongst

*This preliminary report was prepared and read before the American Psychological Association in December, 1913. Since then about five hundred more test records have been collected. The findings are still about the same.

these we have selected four groups representing different degrees of education, as follows:

1. Four elementary school years.
2. Eight elementary school years.
3. Four high school years.
4. Four collegiate years.

In going over these groups of records we have, for the the present, noted in connection with each stimulus word only the fact of failure of reaction or of the reaction being appropriate or inappropriate. As regards the latter distinction there is, of course, a chance of error due to personal equation, objective standards being as yet not available. It need hardly be said that such treatment of the material is but provisional and is undertaken merely for our own orientation in the work. However, the error would not seem to be large, as may be judged from the specimen records submitted herewith. The reactions which have been judged inappropriate have been marked thus, +.

Our material, though small in amount, seems to point in a striking way to two facts: 1. The number of appropriate reactions is in correlation with degree of education; 2. The education factor being constant, there still is great range of variation which we believe to be largely in correlation with native mental capacity or at least with educability; thus one of the subjects of the high school graduates' group has, according to his showing in the test, derived and retained less from his schooling than did another belonging to the lowest education group represented in our material.

A summary of the findings is given in the following table:

TABLE 1. APPROPRIATE REACTIONS GIVEN BY FOUR GROUPS OF SUBJECTS DISTINGUISHED ACCORDING TO DEGREES OF EDUCATION.

	4 ELEMENTARY SCHOOL YRS.	8 ELEMENTARY SCHOOL YRS.	4 HIGH SCHOOL YRS.	4 COLLEGIATE YRS.
Highest number	29	51	76	99
Average number	17.1	33.3	61.4	94.1
Lowest number	7	10	27	85

In the labor of collecting material we need the collaboration of experimenters and subjects in many and widely separated parts of the country. As the object of publication of this preliminary report is to give our collaborators some idea of the nature of our problem and of the material which we require it will perhaps not be out of place here to give a description of our technique.

For the present we require test records only from persons of at least full collegiate education, preferably, indeed, from persons who hold professorships in scientific departments of higher institutions of learning or whose names appear in Cattell's "American Men of Science" and are marked with an asterisk.

The test must be given to subjects individually and not in groups.

It should be conducted in a quiet place reasonably free from distracting influences.

The stimulus words are read off in the order in which they are given on the printed form, care being taken to pronounce them correctly, distinctly, and in a sufficiently loud tone of voice. At the subject's request any stimulus word may be repeated, but its meaning must not be explained or discussed. It may also be spelled at the subject's request if necessary in order to make sure that the word has been correctly conveyed to him.

The subject must be given unrestricted time to formulate a reaction after a stimulus word has been given, but he must be instructed to give the first word that comes to his mind and not to attempt to choose a most appropriate response. The reaction time is not recorded.

The subject must be instructed to react each time with one word and not with a sentence or a compound word; he must not react by merely repeating the stimulus word or by giving a different grammatical form of it.

The subject may say that he is not familiar with a given stimulus word or that he is for some other reason unable to react. The experimenter may then proceed with the next stimulus word after telling the subject that he would come back to the unreacted word later on.

The subject, in spite of instructions, may react in an unacceptable way, as by giving a sentence or a compound word instead of a single word, or by repeating the stimulus word or by giving a different grammatical form of it. In such a case the reaction is not put down, but the pertinent instructions are repeated and the next stimulus word is given.

When all the stimulus words have been given the examiner must give again those stimulus words to which no responses have been obtained or no acceptable responses. Usually even after thus going over the list a second time there will remain a greater or lesser number of instances of failure of reaction.

For the sake of legibility and neatness we prefer to have the reactions written carefully and deliberately in ink.

The experimenter will leave blank the spaces provided at the bottom of the second page of the blank test form for noting the classification of reactions.

Each subject may be assured that neither his name nor anything else that may serve to identify him will be published.

For any further instructions or explanations please address inquiry to Dr. A. J. Rosanoff, Kings Park, N. Y.

P. W., male, age 60, attendant in a State hospital, education four elementary school years.

geography	information		binomial	_____	
participle	_____		crustacean	_____	
Waterloo	man	+	Bonaparte	man	
refraction	retraction	+	meridian	_____	
arithmetic	education		chlorophyll	chloroform	+
botany	fern		tetrahedron	_____	
isomerism	_____		Madagascar	country	
Portugal	country		corolla	country	+
amoeba	_____		ventral	ventilation	+
declension	decline		Belgium	country	
burette	bureau	+	tangent	engine	+
physics	health		dorsal	_____	
hyperbole	privilege	+	colloid	_____	
retina	fire	+	equator	earth	
coagulation	_____		judiciary	judgment	
Cervantes	_____		synthesis	sympathy	+
franchise	permit		Athens	mountain	+
subtraction	number		epithelium	_____	
metabolism	_____		feudalism	future	+
predicate	storm	+	coefficient	_____	
mollusc	name	+	perennial	_____	
inquisition	incompetent	+	plebeian	_____	
amphibious	_____		catalytic	partake	+
decimal	destitute	+	embryo	envy	+
hydraulic	foundry	+	spectrum	_____	
osmosis	_____		continent	country	
percentage	money		spore	game	+
cerebellum	_____		theorem	tory	+
fractions	reduce		Himalaya	_____	
titration	white	+	Renaissance	_____	
carbohydrate	_____		quotient	_____	
duodenum	country	+	oxidation	_____	
cosecant	_____		haemoglobin	_____	
biology	learning		axiom	_____	
Odyssey	odd	+	Amazon	country	
vertebrate	_____		isosceles	_____	
gravimetric	_____		cohesion	_____	
federal	country		protoplasm	_____	
morphology	_____		centrifugal	confident	+
hypothénuse	_____		molecule	_____	
Magellan	name		cotyledon	church	+
hexameter	_____		abscissa	advertise	+
meteor	are	+	gravitation	_____	
momentum	demented	+	galvanic	man	+
Cornwallis	_____		logarithm	love	+
protozoon	country	+	calyx	town	+
syntax	_____		polarization	_____	
distillation	destitute	+	cephalic	_____	
pollen	door	+	proteid	protest	+
peninsula	island		kinetic	country	+

W. M., male, age 38, attendant in a State hospital, education eight elementary school years.

geography	countries		binomial	_____	
participle	participate	+	crustacean	surface	+
Waterloo	Napoleon		Bonaparte	Napoleon	
refraction	refrain	+	meridian	sun	
arithmetic	figures		chlorophyll	_____	
botany	flowers		tetrahedron	_____	
isomerism	summarize	+	Madagascar	island	
Portugal	Lisbon		corolla	Italy	+
amoeba	_____		ventral	_____	
declension	_____		Belgium	Antwerp	
burette	_____		tangent	instrument	+
physics	art		dorsal	_____	
hyperbole	hypo	+	colloid	_____	
retina	_____		equator	line	
coagulation	together	+	judiciary	judge	
Cervantes	_____		synthesis	_____	
franchise	clause	+	Athens	Greece	
subtraction	substract		epithelium	_____	
metabolism	_____		feudalism	feud	
predicate	predict	+	coefficient	good	+
mollusc	tabernacle	+	perennial	form	+
inquisition	implying	+	plebeian	_____	
amphibious	right	+	catalytic	form	+
decimal	arithmetic		embryo	future	+
hydraulic	jack		spectrum	spectacular	+
osmosis	_____		continent	country	
percentage	amount		spore	animal	
cerebellum	_____		theorem	theory	+
fractions	arithmetic		Himalaya	mountain	
titration	_____		Renaissance	_____	
carbohydrate	acid		quotient	quote	+
duodenum	_____		oxidation	oxide	
cosecant	_____		haemoglobin	_____	
biology	history		axiom	axis	+
Odyssey	Russia	+	Amazon	river	
vertebrate	spine		isosceles	_____	
gravimetric	_____		cohesion	together	
federal	government		protoplasm	_____	
morphology	_____		centrifugal	form	+
hypothénuse	_____		molecule	_____	
Magellan	straits		cotyledon	cotton	+
hexameter	instrument	+	abscissa	abscess	+
meteor	gas	+	gravitation	gravity	
momentum	motion		galvanic	force	
Cornwallis	Lord		logarithm	_____	
protozoon	_____		calyx	_____	
syntax	_____		polarization	_____	
distillation	distil		cephalic	_____	
pollen	powder		proteid	_____	
peninsula	neck		kinetic	_____	

I. M., female, age 25, attendant in a State hospital, education four high school years.

geography	globe		binomial	double	+
participle	noun		crustacean	station	+
Waterloo	Napoleon		Bonaparte	Wilmington	+
refraction	light		meridian	line	
arithmetic	figures		chlorophyll	chloroform	+
botany	plants		tetrahedron	five	+
isomerism	ice	+	Madagascar	island	
Portugal	Spain		corolla	flower	
amoeba	zebra	+	ventral	heart	
declension	noun		Belgium	country	
burette	pirouette	+	tangent	angle	
physics	chemistry		dorsal	whale	
hyperbole	exaggeration		colloid	colony	+
retina	eye		equator	line	
coagulation	blood		judiciary	judge	
Cervantes	Spain		synthesis	sentence	+
franchise	suffrage		Athens	—	
subtraction	addition		epithelium	epileptic	+
metabolism	blood		feudalism	frugal	+
predicate	subject		coefficient	efficient	+
mollusc	prehistoric	+	perennial	yearly	
inquisition	France		plebeian	poor	
amphibious	unknown	+	catalytic	motionless	+
decimal	fraction		embryo	beginning	
hydraulic	water		spectrum	colors	
osmosis	water		continent	America	
percentage	interest		spore	fern	
cerebellum	brain		theorem	geometry	
fractions	decimal		Himalaya	mountains	
titration	titanic	+	Renaissance	lace	
carbohydrate	fat		quotient	subtraction	
duodenum	intestines		oxidation	burning	
cosecant	Italy	+	haemoglobin	blood	
biology	animals		axiom	geometry	
Odyssey	—		Amazon	woman	
vertebrate	back		isosceles	angle	
gravimetric	gravitation		cohesion	sticking	
federal	civil		protoplasm	cell	
morphology	morphine	+	centrifugal	sun	
hypothénuse	hyphen	+	molecule	Englishman	+
Magellan	straits		cotyledon	den	+
hexameter	poetry		abscissa	abscess	+
meteor	Halley		gravitation	falling	
momentum	weight		galvanic	iron	
Cornwallis	Yorktown		logarithm	geometry	
protozoon	protoplasm		calyx	flower	
syntax	context	+	polarization	electricity	
distillation	whiskey		cephalic	cephas	+
pollen	flower		proteid	starch	
peninsula	Florida		kinetic	heat	

L. R., female, age 26, graduate student in chemistry, education four collegiate years, two university years.

geography	history	binomial	theorem
participle	verb	crustacean	period
Waterloo	Napoleon	Bonaparte	Napoleon
refraction	reflection	meridian	latitude
arithmetic	algebra	chlorophyll	protoplasm
botany	zoology	tetrahedron	geometry
isomerism	chemistry	Madagascar	island
Portugal	Spain	corolla	flower
amoeba	animal	ventral	right +
declension	noun	Belgium	Holland
burette	laboratory	tangent	cotangent
physics	chemistry	dorsal	ventral
hyperbole	speech	colloid	solution
retina	eye	equator	hot
coagulation	egg	judiciary	judge
Cervantes	Don Quixote	synthesis	syntax +
franchise	women	Athens	Greece
subtraction	addition	epithelium	skin
metabolism	food	feudalism	mediaeval
predicate	subject	coefficient	binomial
mollusc	oyster	perennial	yearly
inquisition	Spain	plebeian	aristocratic
amphibious	water	catalytic	effect
decimal	fraction	embryo	animal
hydraulic	press	spectrum	physics
osmosis	Morse	continent	America
percentage	arithmetic	spore	flower
cerebellum	brain	theorem	binomial
fractions	decimal	Himalaya	mountain
titration	burette	Renaissance	period
carbohydrate	Fisher	quotient	division
duodenum	intestine	oxidation	chemistry
cosecant	trigonometry	haemoglobin	medicine
biology	Hodge	axiom	truth
Odyssey	Iliad	Amazon	woman
vertebrate	animal	isosceles	triangle
gravimetric	method	cohesion	adhesion
federal	government	protoplasm	biology
morphology	science	centrifugal	force
hypothénuse	triangle	molecule	chemistry
Magellan	strait	cotyledon	leaf
hexameter	pentameter	abscissa	ordinate
meteor	star	gravitation	Newton
momentum	physics	galvanic	cell
Cornwallis	Jack	logarithm	mathematics
protozoon	animal	calyx	flower
syntax	grammar	polarization	flower +
distillation	Martin	cephalic	dolicho-
pollen	flower	proteid	carbohydrate
peninsula	island	kinetic	energy

A CRITICAL DIGEST OF SOME OF THE NEWER WORK UPON HOMOSEXUALITY IN MAN AND WOMAN.

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INTRODUCTION.

The newer scientific trends in the study of the neuroses and psychoses have made it absolutely necessary for the neurologist and psychiatrist to gain a deeper and clearer knowledge of the development of the psychosexual life. In studies of delayed or retarded evolution of sexuality the fixations or great attachments of the child and youth to any one of the phases of its sexual evolution and the further and undue elaboration of the emotional life about any one period of the psychosexual development may rightly explain much of the individual pattern of personality and character of the neurotic and psychotic. To what extent the potential psychoneuropath inherits the tendency to many of these irregularities of development or how he acquires them by the accidents of environment must properly concern us in the near future. Until within very recent years no province of study has been so neglected in the psychosexual evolution as that of homosexuality. Some have considered the subject should be abjured because of its revolting and antisocial allusions, others have thought that the first and last word of the subject as far as the physician was concerned had been long ago sounded by such workers as Krafft-Ebing, Ulrich and others; still others have thought all homosexuals are either hopelessly depraved persons from early youth or that they all suffer from congenital anomalies in the psychosexual sphere, for whom nothing might be profitably attempted even to secure a better adjustment of their lot. During the past decade, however, we have learned to think

differently from any of the above inferred impressions. In the class of individuals formerly grouped under the broad term of homosexuality we now find many who may be reclaimed from this state, being really compulsion neurotics masked under the designation of homosexuality. All such are susceptible of cure, or at least great improvement. It would seem, therefore, that we need to take a new inventory of the loose group of homosexuals,—to search very carefully for those individuals one may rescue from the dire fate to which homosexuals as a class are usually consigned. It may be that the apparently increasing number of homosexuals is due to a too wide inclusion, or the failure of exclusions of the subject-homosexuals, of the disguised compulsion neurotic type; or, as Ferenczi believes, society has too heavily suppressed homosexual inclinations in general, that men are wholly at war among themselves, life being a cut-throat game. One must agree with him that it is steadily growing rarer to see men show any tenderness toward one another as in the time of highest Greek culture. However true these and similar contentions may be, so many modern neurologic and psychiatric problems are bound up in a proper understanding of homosexuality in men and women that I have been at considerable pains to make a concise critical digest of the whole subject which I trust may be of some interest. In order that one may properly appreciate some of the very latest problems of analysis and treatment of the many phases of homosexuality I shall give a careful exposition of the subject from its formal aspect as laid down in the remarkably lucid and comprehensive work of Hirschfeld in his last monographs on the subject. I shall then undertake to point out the various problems that naturally flow out of the subject, brought out by the more intensive study of the individual types as studied by Freud and the Vienna school of psychoanalysts. Lastly, the bearing which paranoia and its allied states have upon our subject will be given very brief treatment.

The word homosexuality—sexual attraction to those of the person's sex—was first used in 1869 by an anonymous writer. In the same year Westphal originated the term "contrary sexual feeling." However, as early as 1864 Ulrich, a homosexual man, devised the term *uranism* for the same purpose. The word homosexuality has displaced the others.

Homosexuality is by no means easy of recognition, for it is essential that the homosexual psyche be recognized. An *act* of homosexuality proves nothing. Along with sexual attraction to the person's own sex there must be repugnance to the other sex. To be attracted to both sexes is to be bisexual. Other points of importance are the somatic make-up, including the formation of the genitals, which may show a departure from the normal of the given sex, and a marked neuropathic anlage.

Of the greatest value in diagnosis is the behavior toward those of the person's own sex. Of nearly the same value is the behavior to the opposite sex. The other points just mentioned have only a relative value.

Behavior toward the same sex should be in evidence long in advance of any sexual acts derived from the same. About the eighteenth year these longings become more differentiated and the male or female begins those attentions to members of his own sex in the form of love letters, poems, services of all kinds. Normal love is closely paralleled. Jealousy is common, and so also is suicide and murder from unrequited love.

A peculiarity often seen is a passion for pictures, photographs, sculpture, etc. Some of the greatest artists have been homosexual, and it is seen that Michelangelo's men are superior to his women in that they suggest more of the romantic. Homosexual poets are similarly recognizable in their work. Reveries, day dreams, outward projection of the psyche suggest the homosexual but it is the nocturnal dream which betrays the latter element most completely, and in dreams with pollutions the object is always of the sex of the dreamer. Homosexual men also have feminine dreams (and vice versa), as of nursing infants. The same

dream criterion is also of much value in legally establishing the sex of a false hermaphrodite. If one of the latter dreams that he acts sexually with women the presumption is that he has testicles and vice versa.

The conditions under which shame is felt are of diagnostic value. Normal man is abashed and shows shame in the presence of woman, but the homosexual man shows it toward other men—will not urinate in their presence, and perhaps can not. The homosexual woman is not embarrassed before men, readily disrobes for physicians, and is especially free with homosexual men, even going so far as to live with one as man and wife.

The negative or indifferent attitude of the homosexual toward the opposite sex is sometimes not revealed until after marriage. A woman finds herself quite indifferent sexually and feels for the first time that she had been sexually attracted to her girl friends. A man finds himself impotent, while in some cases it is simply complete indifference. In women at least this awakening may cause severe neuroses. Impotence is overcome by imagining that the wife is a male.

In five hundred homosexuals (men) only 16 per cent were married. A few desired to be rid of their unnatural passion, but most of the answers showed that the marriage was brought about without any activity on the part of the married. Of eighty-three such unions one hundred and twelve children were born. Despite absence of libido before and during the act, coitus could be successfully performed.

Of some importance for diagnosis is the presence or absence of sexual excitement from kissing, embracing or merely thinking of the female, or only from contact of the genitals. In the homosexual these sources of excitement only call forth nausea and repugnance. Of the five hundred cases 50 per cent were impotent, and 53 per cent had never attempted coitus. Only a few of these were in the married list.

When the homosexual man is not impotent he often suffers from precocious ejaculation. If a normal man copu-

lates with a homosexual woman his act is relatively independent of the latter, while in copulation with a normal woman, the course and character of the act depends largely on the state of her own feelings. When a homosexual man is potent his act is normal. Some of his class would rather copulate with a woman than kiss her; also they say that actual copulation is less repugnant than touching her genitals. Both homosexual man and woman, unfortunately, may be fruitful. The character of their offspring will be discussed later.

The effect of a normal sexual act on homosexuals is often to arouse their unnatural feelings. This seems to be inevitable. Prolonged attempts at natural relations on the part of homosexual women lead to profound depression. In both sexes a pronounced "woman hater" and "man hater" behavior is noticeable, so that these people grow to resemble one another. On the other hand homosexual men seem very sympathetic to old ladies and so-called old maids, who appreciate it. The male homosexual is, as a rule, devoted to his mother, as is the homosexual woman to her father (Freud discusses these relationships very fully.)

The differences in the psyche of the child who is to be homosexual are often apparent. When a boy shows feminine traits and a girl masculine traits the diagnosis is, of course, simplified. There is, however, no law in existence to enable us to state that the more boyish a girl is the greater the likelihood of homosexuality. That would imply that *all* the peculiarities could be those of the opposite sex, and such a generalization nowhere occurs in pathology. Long and careful study has taught Hirschfeld that the ordinary homosexual woman lies between the normal woman on one hand and the virile homosexual woman on the other. Many homosexual women make a distinctly mannish impression, but there is no scale of gradations.

All authors agree that homosexuality asserts itself long before puberty. Each homosexual recalls that he or she was different from other children of the same sex. Fathers are often strongly attracted to homosexual daughters. Mothers of homosexual sons, on the contrary, allow or encourage the latter to do ordinary housework. They may

encourage them in their notions of wearing girl's clothing, etc.

The raillery of other boys causes the homosexual boy much distress, for he feels that he is neither boy nor girl and his state of mind is one of constant perplexity. In school studies they often lead, but 90 per cent were weak in mathematics (although 4 per cent showed unusual talent therein). They lead in literature, history and geography, in music and drawing, and are not quite as apt at languages. They are often religious enthusiasts. The muscles are not strong enough for gymnastics. At puberty the boy's voice may not change or changes late (19 or 20), so that they are sopranos. Along with this, however, we must bear in mind that androgyny (hermaphroditism in the male) and gynandris (hermaphroditism in the female) respectively are seen in children and adolescents who when full grown are completely heterosexual. These very individuals, however, are apt to figure in other sexual aberrations, performing acts for their own sensual gratification without true homosexuality.

It is certain that a homosexual child becomes a homosexual adult, a true variation of the human species. Manhood they have none. If they had they would indeed be the monsters they are commonly held to be. As it is they represent a transition, an intermediary stage.

To sum up, the probability diagnosis of homosexuality in boys and girls may be summed up as follows :

BOYS.

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|--------------------------------|--|
| I. Personal status. | Prefers girlish plays, avoids pronounced boy's games, has much girlish character and behavior, often suggests a girl in his looks. |
| II. Behavior toward other sex. | Prefers society of girls. Psychic fixation of mother. |
| III. Behavior toward own sex. | Instinctive modesty before boys; sense of shame likewise. Enthusiastic worship of a teacher or fellow pupil. |

GIRLS.

- | | |
|--------------------------------|---|
| I. Personal status. | Prefers boy's games, dislikes all female house duties; does not care for dainties, sweets. Often suggests a boy in looks and actions. |
| II. Behavior toward other sex. | Plays roughly with boys. Intimate relationship with father. |
| III. Behavior toward own sex. | More modesty and shame before girls. Often enthusiasm for a woman teacher, fellow pupil, etc. |

Despite the dictum of Havelock Ellis that homosexual men show slight anomalies of the genitals, Hirschfeld's experience leads him to the opinion that both the men and women are usually normal in that respect. Possibly phimosis is slightly more common in homosexual men. The latter have normal, living spermatozooids. Hypospadias is even slightly less common in homosexuals. There is nothing of the pseudohermaphrodite about the latter save in rare exceptions. The homosexual woman is said by some to have some hypertrophy of the clitoris, but Hirschfeld finds that if anything the conditions are atrophic or infantile in character. The hymen is normal and intact. Uterus and ovaries are often very small (infantile?). The external genitals are at times those of a girl of ten, despite the rich growth of hair on the pubis and the natural appearance of the closed vulva.

The virile homosexual woman longs for a penis and sometimes asks of physicians the possibility of having one made of plastic work. Very feminine homosexual men on the contrary would like the penis done away with, as is commonly enough shown in the symbolic castrations of the insane in their mentally disordered thought. Homosexual women first menstruate at an advanced age in a large number of cases, many not until seventeen, and at intervals of several months, the flow being scanty. They complain little of the usual menstrual suffering. The idea of menstruation is repugnant to them and they may show great embarrassment when asked if they are unwell, behaving like prudes. In the male, without reference to homosexuality we see bleeding which suggests vicarious menstruation, but in homosexual men we see periodic psychic and nervous phenomena termed menstrual equivalents. We also see phenomena in the proper years which very strongly suggest the female climacteric. Otherwise stated, the so-called male climacteric while not peculiar to them is very common in homosexual men. On the other hand homosexual women suffer but little at the climacteric, nor do they develop the "old maid" type as frequently as normal women. We have to assume the participation of the internal secretions

to explain all these phenomena; the homosexual man having those which belong normally to women, and vice versa.

What has been said of primary sexual characteristics has no bearing on the state of the secondary forms. The former, as we have seen, show but slight departure from the normal. The latter naturally on the internal secretion theory should be pronounced, and as a fact they are—a homosexual of one sex tends to show some of the secondary sexual characteristics of the other. Normally in man they include beard and deep voice; in women the breasts and broad hips.

It is well known that homosexual men have peculiar sweet, tender, musical voices and speech. The singing voices of men and women lie chiefly between alto and tenor, mezzosoprano and contralto. Several who have made special research have noted a distinct Adam's apple in some homosexual women. Hirschfeld's great experience confirms this, for in 463 homosexual women he recognized an Adam's apple in 116, which was as pronounced as in the average man.

In 16 per cent of the male homosexuals the desire to speak or sing in falsetto was prominent.

The head hair of the male homosexual is often soft, fine and wavy, while that of the female is the reverse and only reaches down on the neck as far as the lower border of the shoulder blades. The normal woman's hair often reaches the pelvis. The former is indifferent as to the toilet of the hair, just as the male homosexual takes no pride in his beard. They wear the latter often as a sort of disguise, for a clean shaved face would make them more easily recognized. Failure of beard is extremely rare but about one in four showed a weak growth of beard. The women often show quite a growth of beard but the actual "bearded women" are almost never homosexual. This holds good for other examples of gross, solitary malformation, such as women with large clitorises and like defects. The pubic hair of homosexuals is often inverted, men having the female configuration and vice versa.

Completely developed gynecomasty in males and andromasty in females are not associated with homosexual feelings. The approximations are much less pronounced. Thus homosexual women have small breasts with inability to nurse their children, while the men may have large areola, distinct glands, polymastia and a deposit of fat.

Large hips in men, narrow ones in women do not straight-way point to homosexuality, but these are present in a goodly proportion. Hollowness in the lumbar region is often marked in males, so that the impression is one of large buttocks in association with small waist. Homosexual women dislike the narrow waist and corset while the men, often lace to excess so that they may swoon while dancing. Men not infrequently show slightly bowed legs and women straight or slightly inbent legs, depending on the shape of the pelvis. The Greek androgyne, however, was knock-kneed, having the ordinary female type of legs. Certain individuals (males) are built like young boys. Others, built like giants are peculiarly flabby. Virile homosexual women often are large with large bones. Small, finely shaped hands are common in men.

As regards the tegumentary structures, muscles, etc., one may say that both men and women show a transition type of muscle, intermediate between normal male and female, so that one resembles the other in this particular. In extreme cases we find women with masculine muscles and vice versa. In childhood the homosexual boy does not exercise, while the girl may.

In regard to the subcutaneous tissue the homosexual male may show the plumpness of the normal female, and be proud of his "decollete". In advanced years normal men tend to become fat at the lower part of the abdomen, which in normal women is not the case. So homosexual women often show this distribution of fat.

In comparing the complexion it must be remembered that normal men show the effects of out-of-door exposure, while women always cultivate a complexion. But homosexual men despite such exposure often have very soft skins,

while homosexual women do not as a rule show a virile skin, because it is but seldom that they lead such exposed lives.

In about 90 per cent of male homosexuals Hirschfeld found a distinct "complexion" either delicate white, light yellowish, rosy or reddish, transparent, etc. About 5 per cent of homosexual women show a relatively dark, coarse skin.

Many homosexual men have soft features, languishing expression, tremulous nostrils, drawing upwards of the lips, lateral inclination of the head, throwing upwards and backwards of the chin, suggesting the mimicry of women. Homosexual women have a fixed, hard look, short backward jerk of the head and other mimicry of men. Hirschfeld flatly contradicts the assertions of others in this field. He denies that homosexual men have narrow lid fissures, or "shaded" or fishlike eyes, or pallor, or ugliness. We often see fine, soulful eyes, finely chiselled nose, well formed lips and ears, fresh complexion, fine wavy hair, etc. Many have the faces of children. Both homosexual men and women look younger than they are, preserve their youth longer. Krafft-Ebbing speaks of their fine features and figure (males), fresh, manly and healthy appearance, spirituality and "interesting" quality.

Arm movements in homosexual men are unquiet, graceful and highly characteristic in general. They are extremely well adapted to any kind of fine work (knitting, crocheting). The homosexual woman has the nervous sledgehammer fist. The homosexual man is inclined to twist and rock his body while homosexual women hold their backs rigid and erect.

In regard to the gait, it is so characteristic that no description is given in the main text. The gait is of a rocking character and can not be overcome. The step is shorter than in normal man. There is sometimes a shuffle, but others speak of lightness on the feet. In dancing there is feminine grace. Homosexual women have often been likened to military officers. Hirschfeld's homosexuals showed twice as much lefthandedness as normal men. In

the handwriting, it can only be stated that inversion manifests itself here as elsewhere.

As regards the conduct of life: the homosexual woman leads an active, energetic life—is enterprising, aggressive, adventurous, and at times brutal and regardless. In general she is cold-blooded. The homosexual man is quiet and reserved and takes pleasure in any quiet occupation or hobby, as gardening and other work on his premises, and in scientific work and the fine arts. He is amiable, conciliatory, often to the point of servility. Naturally no one should infer that these peculiarities alone have any force in diagnosis. The homosexuals simply show a larger percentage, much larger, of such behavior than heterosexuals.

The homosexual man is impressionable, easily downcast or elevated in spirits; pain and sorrow depress him deeply. A bitter struggle for his existence, a battle for his rights lie far from him. The will as such is not weak. He is inhibited by fear of what is said of him. Work for him is a comfort, and he is especially fond of teaching, so that there are many homosexuals among the teaching body. His feelings guide him, which explains his æstheticism, and fondness for nature and the fine arts.

The average intelligence of homosexuals is hard to estimate, for while in some it is high, it is below normal in others. A male homosexual has all the volubility of women, and is often a liar, the latter in part because of his position in society and the necessity of deception. To say, however, that all homosexuals of both sexes are liars is to show one's ignorance.

In regard to the dwelling place, the rooms of a homosexual man are decorated largely with objects preferred by women, although since he lives to a great extent the life of a man, the general appearance of the interior suggests both sexes. This naturally applies in full force to toilet articles. Homosexuality is often well shown in the nature of articles carried about the person, women having knives, corkscrews, cigarette cases and matches, and men dainty portemonnaies, smelling salts and fancy handkerchiefs. The subject of apparel and the desire to wear the clothes of the

opposite sex, otherwise known as transvestitism, is a compendius subject in itself, and Hirschfeld has published a book and atlas about it.

As regards the nervous system and sense organs, if one is permitted to return briefly to this subject, of male homosexuals 99 per cent have a soft or mild temper, which, however, varies much in degree. In 26 per cent weeping readily occurs or at least there is a strong tendency thereto. They are readily elated, and generally speaking have the affects of children. There was but one in a hundred interrogated who was not fond of music.

Both sexes have in common a certain elasticity and lability. After great sorrows they quickly recover, while as far as lability is concerned they are in all respects neurasthenics. This evidently does not apply to the more virile homosexual women. Hirschfeld's statistics show in homosexual men the great frequency of insomnia and other sleep disorders, vertigo, migraine, pressure on the head, fatigue, swooning crises, precordial anxiety, stuttering, morbid and obsessive fears, etc. Over one-half complain of some one of these symptoms.

In considering the differential diagnosis between friendship and sexual love, one finds that the homosexual has an involuntary attraction to his own sex, negative behavior toward the opposite sex and the outward appearance of the latter. Nevertheless it is not always easy to distinguish between amor (love) and amicitia (friendship). A man may dislike women without being attracted to men. There are human beings who are asexual, and others who are monosexual. By the latter term is meant that while sexually attracted only by the opposite sex they nevertheless hate the latter. The outward appearance of the opposite sex, when present, often means homosexuality. Yet in certain cases homosexual men and women do not present these stigmata at all. Conversely we see androgynes and pseudohermaphrodites who are heterosexual. There is more or less simulation of the stigmata. Thus a normal woman with laryngitis may suggest a masculine voice. A fat man has breasts which resemble those of a woman while transvesti-

tism may not be due to any inborn impulses but to other motives, as suit ability for a given purpose.

There are also transitions between homosexual and bisexual men and women, so that diagnosis is rendered difficult on this score. Freud and others believe, furthermore, that there is no friendship without sexual attraction. The somatic quality of an individual is that which attracts another to him and this point is of great value in diagnosis. Among normal subjects it is claimed that mere friendship between a man and woman is possible only when there is some slight physical antipathy.

Much depends upon local customs. Thus in countries where men kiss and embrace, lock arms, etc., these customs might suggest physical love to a stranger. So in some localities men dance together, in others women dance together.

In homosexuality the attraction to the same sex is based on sense-impressions (eye, ear); then on ordinary contact, and finally on some form of genital contact.

The diagnosis between homosexuality and pseudohomosexuality is also very difficult. A sexual act *per se* is no measure of a sexual impulse. This is seen to advantage in ordinary prostitution. Men and woman may be seduced to homosexual practices, just as they can to heterosexual practice, and may take these up out of curiosity. The ability to perform ordinary coitus is no evidence of any deep sexual attraction to the women, and inability to copulate may be associated with intense desire. Women must be in a state of increased sexual desire to have an orgasm.

Heterosexuals perform homosexual acts under three conditions; 1, for material gain of some sort—there are many varieties given; 2, to accommodate homosexuals out of mere good nature, friendliness, sympathy, gratitude, etc.; 3, because no members of the opposite sex are available. The pseudohomosexual never becomes a true homosexual. His homosexual acts are an episode or a passing phase in the evolution of sexuality, like masturbation.

The diagnosis between homosexuality and bisexuality has thus far not been sharply defined. Freud's contention

makes every individual bisexual, but not in any equality or proportion. The details of his views will be given later; we may say here that he believes that every heterosexual has a homosexual component and vice versa. Hirschfeld holds that this is contrary to all experience. A bisexual subject must be attracted to both sexes to a similar degree without regard to the performance of sexual acts.

On account of the probability that adolescents incline to bisexuality no one should be pronounced a homosexual until the beginning of the twentieth year. This delay is kin to that required in determining the sex of pseudohermaphrodites. In some cases the true nature has not been apparent until a much later age. Thus subjects who have believed themselves heterosexual or bisexual have at last been forced to admit that they were homosexual. Adults with strong attraction toward both sexes are indeed rare. Youths of both sexes who are attracted toward both sexes but not in the same degree are well known. The males love the virile component in a girl and the feminine component in the youth. Bisexual women love feminine men and masculine women. Normal girls are common who are attracted alike to men and the masculine component of virile girls. Normal youths, attracted chiefly toward girls are also attracted to the female component in males, which is not the case with a fully developed virile man, who is repelled by it.

There are, however, bisexuals in a narrower sense who, like the god Bacchus, have a physique which combines the qualities of both sexes or rather of neither. In their motions, mimicry, clothes, etc., they represent both sexes. Hirschfeld gives one history, that of a professor who was attracted sexually to fresh youthful subjects with small moustaches, irrespective of the station of life; while in woman he preferred the coarse, red-faced, strapping working type, and the prostitute. He had relations with both, and the attraction toward the male of the type sought was twice as strong as that to women in general. The attraction toward a woman of the type sought, however, was much stronger than that toward an ordinary male. He could get along without women but not without his type of male.

In both sexes we find bisexuals who allow themselves to be loved equally by elderly men and elderly women, remaining passive throughout. Hirschfeld isolates four types of this sort, according to their behavior with men and women, young or old. To cite examples a bisexual man or woman loves elderly women passively; another man (or woman) while passive to elderly women makes active love to young men, etc.

Some bisexuals outgrow their bisexuality and the stronger libido displaces the weaker. In some of these cases the bisexuality is terminated by a marriage for material reasons. On the other hand latent or tardy homosexuality can only be explained by a bisexual anlage. The so-called acquired, cultivated homosexuality rests either on bisexuality or pseudohomosexuality.

Bisexuality has been seen in connection with changes in disposition of the manic-depressive type, complicated with narco-mania. In a case cited the subject was homosexual in the depressive phase, heterosexual in the state of exaltation and under the influence of morphine. In these phases the subject shows the physical and mental peculiarities of each. As homosexual his voice is high, movements feminine, and vice versa.

Bisexuality is noted at times in severe psychoses. Thus heterosexuals have compulsive ideas of a homosexual character.

The difference between the behavior of homosexuals and heterosexuals refers to absence of libido and impotence in men in the presence of man, when this behavior occurs in subjects presumably heterosexual, or at least not homosexual. In the married state the wife suspects homosexuality in the husband and the man mistrusts his wife. Knowledge of the facts often enables one to convince many women that their suspicions are unfounded.

The "horror" sometimes has a feticistic component, as the presence or absence of some feature may cause libido or repugnance. Some men are repelled by the female breasts, some women by full beards.

Women haters who have written extensively against the

sex, and have helped to cause movements of women hatred, have invariably been heterosexual men (Schopenhauer, Strindberg, Weininger). On the other hand, homosexuals do not hate women but merely feel indifference.

In considering the diagnosis between homosexuality and the three other transition-forms,—pseudohermaphroditism, gynandromorphy and transvestitism, one may say that many physicians and laymen, and even the homosexuals themselves are inclined to see in any man with feminine features or traits, and vice versa, a homosexual person. With broadening experience it is seen that homosexuals often do not possess the habitus of the opposite sex: while complete heterosexuals may present the traits of the opposite persons. Women with hypertrophied clitoris and full beards, men with penoscrotal hypospadias and gynecomastia are most likely to be heterosexual.

Homosexuality and pseudohermaphroditism may be confounded. In a case related in detail by Hirschfeld a superficial diagnosis would have been homosexual woman of pronounced virago type. The pubic hair had the female configuration, the clitoris was fully covered by the external genitals. Yet a complete examination showed that the person was a heterosexual man with penoscrotal hypospadias and slight somatic and psychic feminine exterior.

More difficulty was presented by another patient who fully resembled a woman in the somatic habitus (hips, breast, genitals). "She" had been in trouble on account of absconding with a woman friend. Hirschfeld regarded her as a homosexual woman of non-virile type, but examination of the urethral secretions revealed spermatozooids.

Androgynous men and gynandrous women are by no means always homosexuals. There are eunuchoid subjects so-called because they present the appearance of castrates. Males have high voices, beardless faces, feminine shape. Spermatozooids are usually absent and often there are no testicles. Women show the opposite traits. These subjects may be fully heterosexuals.

As regards transvestitism, heterosexuals may affect the apparel of the opposite sex and impersonate the latter on

the stage. A female impersonator may despise all homosexuals and effeminate men. Some transvestites seem to satisfy their sexual longings in making up as women or men respectively (automonosexualism). Hirschfeld gives five groups of transvestites as follows: heterosexual, homosexual, bisexual, asexual (?), and monosexual (automonosexual).

As to the method of examination of homosexuals, Hirschfeld gives the following:

In laying out a method of examination of homosexuals it is never best to ask leading questions. The questions are directed first to the negative side. It may be conducted on the following lines:

1. Parents, living or not, health, cause of death, etc.
2. Consanguinity in family (ascendants).
3. Consanguine marriages in brothers or sisters.
4. Age of parents at subject's birth. Difference of ages of father and mother.
5. Subject of legitimate birth.
6. Resembles which parent most, body and mind.
7. Number, ages, of brothers and sisters.
8. Before subject's birth did mother wish boy or girl.
9. Parents happily married. Marriage for love.
10. Parents strict or the reverse. Which parent the stronger, more energetic.
11. Was subject sympathetic toward parents.
12. History of nervous and somatic stigmata in ascendants, brothers and sisters, etc.
13. Habits of parents towards alcohol.
14. History of suicide in any relative. Particulars.
15. History of serious opposition to laws in any relative.
16. Many single relatives over age of 30.
17. Instances of feminine men or masculine women in relatives.
18. Instances of homosexuality in family.
19. Age of subject when first walked and talked. First and second teeth cut when.
20. Any history of inflammation of brain, injury to skull, headache, convulsions, chorea, strabismus, dental abnormalities, chronic constipation or bedwetting.

21. Was subject fearful, timid ; history of nightmare, night terrors ; history of stuttering.

22. Nail biting, thumbsucking, nose-picking, wandering, lying, stealing, immoderate weeping.

23. Choice of playmates (boys or girls) ; choice of play (snowballing, scuffling, "soldiers", etc., or dolls, cooking, fancy work).

24. Did subject note difference between self and others of sex ; fond of solitude ; indifference to those of own age.

25. Sexual appearance before puberty ; resemblance to own or other sex.

26. History of oft-repeated dreams and nature.

27. What subjects most readily learned and to what occupation best adapted.

28. History of corporeal punishment by parents, etc. ; method.

29. Education : boarding school, religious school, home ; what associates as to sex and age.

30. Enthusiastic friendships with pupils or silent adoration of teachers.

31. What bedfellows at various periods, old and young ; what "bath fellows".

32. First overhearing of talk on sexual matters and circumstances.

33. Any sexual experiences before puberty.

34. History of masturbation, first time. Cause. Influenced by playmates or adults, males or females. How many years, how often and in what manner.

35. First pollution. First menstruation.

36. Age at voice change, growth of beard, swelling of breasts ; if male, history of slight swelling of breasts, if female slight deepening of voice or appearance of down on face.

37. Age of first attempts at a sexual embrace of any kind. Nature of.

38. Height and weight.

39. Muscles hard or soft. Flesh firm or soft.

40. Favorite sport—one requiring strength or grace.

41. Gait or stride—small, slow, tripping or large, firm.

Body held steady and straight or with rotation at the shoulders or hips. Swinging of arms.

42. Ability to whistle.

43. Complexion light or dark, clear or muddy.

44. Head hair long, thick, soft or coarse. Presence of hair on trunk and limbs. Color and arrangement of head hair. Actual beard or simple down.

45. Blush or pale readily.

46. How sensitive to pain.

47. Hands and feet, large or small (size of glove). Handshake.

48. Handwriting.

49. Lines of body—slender, angular, rounded (especially at shoulders).

50. Hips broader or narrower than shoulders.

51. Breasts—full, round, thin, flat. Size of nipple and areola. Supernumerary nipples.

52. Ears large, outstanding, adherent, small, elegant, etc.

53. Eyes. Color. Glance steady or shifting. Soft, cordial, enthusiastic, coquettish, etc.

54. Favorite odors and perfume.

55. Preference for sweet, bitter, sour, salty, spicy, etc.

56. Facial expression manly or womanly. Photographs.

57. Form of larynx. Prominence of (Adam's apple), voice high or deep, loud or gentle, simple or affected.

58. Inclination to sing falsetto, bass.

59. Left handed.

60. Nervous disorders—headache, migraine, insomnia, prostration, restlessness, tremor, vertigo.

61. Any defects of external genitals.

62. Temper—soft or hard.

63. Susceptibility to joy and pain. Special tendency to laugh or cry, with termination in spasms.

64. Nature even or moody with intervals of depression and cheerfulness.

65. Ready tendency to violence, anger, excitement, exaltation.

66. Family sense strong or weak, strong attachments to father, mother, home, country.

67. Has subject good nature, kindness, self sacrifice, charity, desire to be loved.

68. Is there present great energy, overestimation of personality (or the reverse), receptivity for admiration and applause, bent toward the striking, desire for mastery.

69. Is subject garrulous, curious, secretive, fond of gossip. Is subject suspicious or credulous.

70. Attitude toward religion (pious, indifferent, sceptical, sectarian). Attitude toward the transcendental, superstition, spiritualism, apparitions, forebodings, mysticism. Has subject personal experience as basis of belief. Has belief ever changed.

71. Is subject adventurous, romantic, roving.

72. Is subject orderly (pedantic) or disorderly ; punctual or unpunctual, economical or wasteful. Does subject make collections ; if so, what of.

73. Compulsions or obsessive fears.

74. Is subject revengeful or forgiving.

75. Is the will strong or weak, ditto energy. Is subject timid or courageous.

76. Is the bent toward living well or self denial. Is the bent toward mental or corporeal labor or to comfort, ease.

77. Attitude toward drinking and smoking. Is there alcohol intolerance.

78. Condition of memory, attention, imagination. Inclination to revery. Fondness for imaginative fiction.

79. Is the psychic bent toward the new, toward proofs, self sufficiency or the opposite.

80. Ability in mathematics and the abstract. Talent for the literary and artistic. Does subject read and study much. What kind of reading (science, poetry, belle lettres, crime, romance, humorous works, daily press).

81. Attitude toward music.

82. Inclination to go on stage.

83. Favorite characters in the world, past and present.

84. Inclination to definite occupations as cooking,

dress making, handiwork, or to sports, as hunting and shooting. Subjects of greatest interest, politics, fashions, theatre, horses, flowers.

85. Participation in politics. Conservative or radical. Does subject hold office.

86. Is subject satisfied with his calling.

87. Does clothing play a large role in the thoughts. Simple or striking garments. High collars or free neck. Strong preference for or repugnance to finery and ornaments. Love for special colors.

88. Is subject popular or unpopular. Fond of society or solitude. Prefer country, town or large city.

89. Has subject ever produced anything or rendered any service.

SEXUAL IMPULSES.

90. Presence or absence of sexual inclinations.

91. Toward which sex.

92. Any change in such feelings before, during or after puberty.

93. Age limits of those to whom subject is attracted.

94. Attracted most to mental and social superiors or inferiors. Are they refined and gentle, or coarse and forceful. Preference toward special rank. Attracted to those whom subject can influence through education.

95. Impressions on which attraction is based : *visual*—face, figure, preference for nude or clothed. *Auditory*—voice. *Tactile*, soft, swelling flesh, or hard firm muscles. *Olfactory*—personal emanations—attractive or repellant—local odors. *Psychic*—the character, intellect, will.

96. Attracted to those who possess same or opposite qualities—size, hair, color, mind.

97. Sexual impulses toward those of pronounced type of their sex, or the reverse (feminine men, masculine women).

98. Sex of persons dreamed of in erotic dreams.

99. In public places do more women or men attract the attention. In whose society most at home (male or female).

100. In photographs, etc., most interested in men or women.

101. Before which sex is subject most concerned. Is sense of shame (if possessed) more in evidence before men or women.

102. Inclinations volatile or steadfast. Tendency to flirt.

103. How does subject distinguish between friendship and love. Basis of friendship, duration of friendship. Can latter replace love.

104. Did subject ever marry and for what reason. Nature of married life.

105. Has subject children. Does he or she love them. Are there resemblances sexually to subject.

106. Strength of sexual impulse and ability to control same. Outlook for control at later period. How much control possible. Substitution of self-gratification possible.

107. Frequency of sexual activity. Does satisfaction come rapidly or slowly.

108. Kind of sexual activity. Active or passive. Preference for any variety of intercourse.

109. Repugnance or indifference to normal act. Any attempts at latter. Is there impossibility or any obstacle in regard to same.

110. Intercourse with prostitutes or repugnance toward same.

111. Any sexual impulses toward the sex which does not attract (determination of bisexuality).

112. Is intercourse possible with sex which does not attract, by using the imagination, etc.

113. Is subject attracted sexually to immature persons.

114. Any desire to inflict pain—corporeal or psychical—on the object of love (sadism).

115. Any corresponding desire to be hurt physically or psychically by object of love (masochism).

116. Any predominant passion for definite parts of body (hair, hand, foot, liver spots) or articles of apparel (shoes, handkerchiefs). Sexual excitement from wearing clothes of other sex.

117. Bent toward exhibitionism.

118. Bent toward peeping on others during performance of private acts.

119. Excited by own body.

120. Sexually excited by animals.

121. Presence of other sexual abnormalities in addition to those mentioned.

122. In regard to questions 111-121. In case of affirmative answers can these impulses be explained, as by reduction, childhood experiences, etc., or are they innate. What opportunities uncovered these anomalies. Have the impulses been put in practice.

123. Has subject fought against his impulses. By what means and with what results. Medical treatment or none.

124. Is subject very unhappy. Weariness of life, suicidal thoughts, conflict with family or authorities, subjected to extortion, conflict between impulses and religious beliefs.

125. Subject's own convictions as to sexual conditions. Guilty or guiltless, natural or unnatural. Desire for change of nature or content as matters stand.

126. Experiences if any in regard to other subjects who are bisexuals, homosexuals, masochists, etc. Associates among same. How many acquaintances like self; what classes comprise them.

127. Has subject formed any opinion as to Nature's purpose in creating homosexuals (the homosexual woman who answers all these questions believes that such women being emancipated from marriage and childbirth can concentrate on other objects and produce "children of the brain," etc.).

The replies to all these questions may be so extensive that in one case Hirschfeld filled three hundred and sixty closely written quarto pages, and the examination lasted from December 6th to May 30th. By rights the statements of patients should be supplemented by those of relatives, teachers, comrades and medical attendants.

In making a subdivision of homosexuality we will now discuss active and passive phases and question of acquired homosexuality. Hirschfeld denies in toto the existence of the latter although most authorities do not agree with him.

Individual variations are common. Thus a woman artist of great elegance was attracted only by men, yet only such

men as lived as women. After much trouble she found a transvestite who was sexually normal and married him. For women, or men in men's clothes, she had no desire. This woman could not be reckoned among any of the subdivisions, but as a class by herself. In another case a woman who was extremely feminine lived with a woman of so masculine an appearance that she was allowed to wear men's clothes. There were no homosexual relations. Another man lived with a supposed girl who despite a vagina was essentially male, ignorant of sex. All such cases are but curiosities, which simulate homosexual relations.

If one has an opportunity to see a thousand homosexuals together, such as is possible at homosexuals' balls at the Dresden Casino, Berlin, he will at once be impressed with the fact that they fall into two well marked groups. The members of one are masculine and nothing about them reveals their nature—speech, look and behavior are normal. The members of other are distinctly feminine, some of them being dressed as women, and the rest are smooth shaven, perfumed, etc. Many have the rounded female form, voice and speech and were they out of sight their voices would lead to the belief that women were conversing. Women homosexuals are divided into two classes quite analogous. The virile class is well known, but the other or unrecognizable type is made up of women who wear corsets, high heels and general female make-up. These two classes in both sexes are about equal in numbers. Each has a virile and feminine type. At first sight it would be supposed that attractions between homosexuals are based on these differences, although both classes should alike seek the society of heterosexual men. If the attractions are studied closely, however, we find that homosexuals seek by preference those of a certain age. Thus the feminine homosexual who dresses as a woman may crave the society of young, beardless youths. Again, two very virile homosexual women whose companionship was supposed to be nonerotic were found to have relations. The more masculine type of male homosexual may be attracted only by elderly men.

According to the age of the attracting person homosex-

uals are divisible into ephebophiles (lovers of youths, 14-21), androphiles (grown men up to the period of old age), gerontophiles (lovers of the aged) and pedophiles (lovers of small boys). The two latter are not as conspicuous as the two former, which comprise 45 per cent of the whole. The corresponding divisions in women are parthenophiles (lovers of young women, virgins), gynecophiles (lovers of adult women), grasphiles (lovers of old women), and korophiles (lovers of undeveloped girls).

Age is, of course, not the sole object as many minor attributes play a rôle—bodily and mental characteristics. For example some male homosexuals care only for soldiers; some female homosexuals only for prostitutes.

A question of great importance not yet discussed is the sexual nature of the object of attraction. A large number are attracted only by heterosexuals. Many others are indifferent in this respect, and the sexual nature of the subject to whom they are attracted may be of any sort. Some homosexuals repel one another sexually. From this viewpoint homosexuals may be homoeophiles (like loving like), allophiles (unlike and unlike) and amphiphiles, in which no distinction is made.

Some homosexuals only pair off with people of their own class (as two prostitutes). The peculiar relation between teacher and pupil, in which one is attracted by the other, are expressed by didactalophiles (lovers of teachers) and mathanophiles (lovers of pupils).

Another radical difference is active, passive, and mutual.

The physical expression of the attraction may be briefly described; about 40 per cent each are examples of digito-genital and bucco-genital, the remainder divided in males between pederasty and interfemoral coitus and in women between intergenital contact and the use of the phallus. It is denied in intergenital relations that one woman must have a large clitoris. A homosexual may attempt other methods but as a rule returns to his favorite (stereotypy). Homosexuals are preyed upon by extortionists and blackmailers who yield to their advances for these ulterior purposes.

When we come to the consideration of the division of homosexuals according to origin and concomitant phenomena, we find Hirschfeld is an uncompromising antagonist of the *acquired* homosexuality of Krafft-Ebing and others. Alleged cases of this he would regard as examples of latent or tardy homosexuality or bisexuality. Homosexuality is of constitutional, endogenous origin. So-called acquired cases are often examples of pseudohomosexuality, as when a heterosexual of marked natural desire can find no normal object and is forced *pro tem* to associate with one of his or her own sex.

Many students of homosexuality have gradually been led to admit that there is no acquired form. Such alleged cases are probably bisexual. Here belongs the so-called "temporary homosexuality", which is seen between the ages of 14 and 21 before complete sexual maturity.

In regard to a neuropathic anlage this is present in a large proportion of homosexuals. Others have stable nervous systems, are robust and resistant as any heterosexual. In the neuropathic, it is a question how much is effect, resulting from their disposition and the many troubles which it causes. Their condition causes family troubles among others and the nervous strain results in hysterical and hypochondriacal states. Some take to drink, others have religious delusions, others delusions of persecution, etc.

Complicated homosexuality is a condition readily intelligible, because a true homosexual may indulge in any of the perversities (sadism, masochism, etc.).

Sexual infantilism is a condition which may be seen in both homosexual and heterosexuals. There are striking mental and psychic defects. In some instances this state merges by simple gradations to that of imbecility. The sexually infantile possess psychosexual peculiarities of sexually immature children with whom they often consort.

In homosexuals we may see degrees which amount to satyriasis and nymphomania in the heterosexual; we also see the analogue of anesthesia, etc.

In order to avoid confusion let it be stated that pseudo-homosexuality is a generic term which includes bisexuality,

the performance of homosexual acts for material motives or for want of a normal object, or some performances of pseudohermaphroditis and certain cases of transvestitism, etc., etc.

We shall now briefly review the data concerning the congenital nature of homosexuality and the reasons for belief in the same. The reasons adduced for this view are numerous. One reason put forward is that the state is an effort of nature to prevent overpopulation and to antagonize degeneration by rendering certain members of certain stocks sterile. It must be decided, however, whether this state is natural or unnatural. Homosexuals say that if the condition is contrary to the nature of the majority it is not at variance with their own nature, therein differing from the unnatural practices of normal men. Hirschfeld gives eleven reasons for his belief in the congenital nature of homosexuality; they are as follows:

1. Its essentially original or pathmaking character; for despite all that has been written and sung about love between the sexes, this love when transferred to homosexuality remains the same in all respects. The reason is the more valid because homosexuality often appears spontaneously in those who have never before heard of it, even perhaps after experiences with the opposite sex.

2. Before sexual maturity, young children may show plainly the characters of the opposite sex.

3. Long before puberty homosexual attractions and feelings occur concerning the nature of which the subjects are ignorant.

4. Nearly all homosexual men and women can recall that from their earliest awakening their thoughts were directed to members of their own sex.

5. The first erotic dreams (pollution dreams) have to do with those of the own sex.

6. The homosexual differs from the heterosexual only in the direction of his love. The latter itself is the same in both.

7. The homosexual direction is *fixed*. The firmest will, the greatest spiritual energy can not change it.

8. All the psychic accompaniments of physical love are as natural to the homosexual as to the heterosexual.

9. All sexual differentiations show deviations from the male or female average type.

10. Blood relations of homosexuals often show transition forms between the sexes, i. e., feminine men, masculine women, etc.

11. That homosexuality is an integral part of the social organization is shown by its prevalence throughout the world and in all historical epochs.

The reasons against the congenital theory may be thus stated : The final proof of the congenital theory is found in the results of exclusion. The number of motives alleged for homosexuality is not far from one hundred. Hirschfeld's careful study of cases has failed to reveal a single instance in which a strictly heterosexual subject became homosexual. Bloch cites a great number of causal elements which might give rise to an acquired homosexuality, but few of them are tenable, and these are best explained by an original anlage.

Some of the alleged factors which may determine homosexuality are feminine occupations pursued by men, religious affect conditions, abnormities of the genitals which prevent normal intercourse, castration, physical heraphroditism, onanism, chronic alcoholism, the use of hasheesh, feminine costume and customs, desire for new sexual sensations, idleness and blaséness, seduction in the widest sense, segregation of members of one sex in schools, barracks, prisons, cloisters, hotels, theatres, the presence of public privies, observation of animals, intimate association with same, erotic and obscene literature, works of art, photographs, etc., self contemplation in mirror, study of antique objects, a hateful interior which repels the other sex, fear of venereal diseases, abnormal configuration and sensations in anus, anal masturbation, flagellation, misogyny, etc. A few causal elements have to do especially with women, especially the modern movement toward emancipation of women, satiety as to male company, etc.

Hirschfeld in order to refute these arguments divides the above material into four groups:

First. Some of these alleged causes are universally present and of such common incidence—for example obscene acts of animals—that they could be operative only on bisexual individuals. The same is true of sex segregation, contemplation of erotic objects and the like. If such elements could rouse homosexuality the victims would be much more numerous.

Second. In many of the citations, cause and effect are confounded. A man does not seek his own sex because he is unmarried or because he is impotent. The latter conditions exist because the man is already homosexual. So the choice of occupation, the wearing of female apparel, are results, not causes.

Third. Genital abnormalities, anal abnormalities, extreme ugliness and chronic alcoholism do not occur in homosexuals to any marked extent. Analysis of many cases proves this.

Fourth. In this group homosexuality is confounded with pseudohomosexuality and simple onanistic practices, which tend to occur under prolonged sex segregation.

The alleged causes of homosexuality which demand especial attention are: satiation with heterosexual intercourse and awakened antagonism to the opposite sex—the principle of exhaustion of the normal impulse as the result of over-excitation. It is said that prostitutes develop this antagonism. But the homosexual is not antagonistic but merely indifferent. Hirschfeld has been at great pains to find homosexuals who, exhausted, and no longer responsive to natural attraction, seek out refinements of vice to arouse them. He failed to find a single “satiated” man. Most of them had never had intercourse with women. Youth with homosexual anlage could, of course, be readily seduced by old roués, but all of them deny it. As for the “sexual epicure,” he is often enough homosexual. Hirschfeld no more believes in the existence of debauchees who devote themselves to the seduction of young men and boys than he believes in witches.

It has also been claimed that onanism leads to homosexuality. The universality of the practice should disprove this claim. Another alleged cause is suggestion or moral contagion. This subject is one of theory, of possibility. It has not been denied by the author that sexually undifferentiated youth may assume, so to speak, temporarily a "homosexual pose." There is no permanent metamorphosis possible, however, for if suggestion could bring this about, then a homosexual man might be made heterosexual by suggestion. Every suggestive influence has been used for this purpose, a subject to be discussed under treatment.

Binet and others have made homosexuality dependent on obsessions, dating back to pathologic associations in childhood due in turn to psychic trauma. When such a theory is applied to a typical homosexual with all his somatic and mental peculiarities how absurd it seems. Binet's view comes close to Freud's doctrine of infantile sexual experiences as a cause of psychoneuroses. In both cases there is an endogenous element. Freud's infants, however, are "fixed" to the parent of the opposite sex. He does not expressly describe any constitutional anlage for his homosexuals. His "psychosexual inversion" is a something often associated with secondary and tertiary corporeal stigmata.

The bisexuality of children, which according to Freud is universal, is seen in the bisexuality of adolescence which when there is sexual segregation leads to homosexual practices. Yet ten years later nearly all of these youths will have become fully heterosexual.

One may ask with Hirschfeld, "Is homosexuality degeneration, disease, or biologic variation?" Since we do not know why a certain conception will result in a girl or boy we are all the more powerless to answer why a given conception will result in a transition. Just as the rate of male to female births is constant, so the percentage of homosexuals in a community is fairly constant (about 2 per cent). Several scholars have sought to explain this variation by the doctrine of atavism, going far back in the scale of evolution until there was no phylogenetic difference in sex. It

has been likened to color blindness and so-called "color hearing." The colorblind resembles other men outwardly, is neither a diseased man nor a degenerate, and belongs to a minority.

The maternal impression theory has vogue among homosexuals themselves, who claim that a homosexual man is born whenever a mother has wished for a female child while carrying a male product of conception, and vice versa. But such a belief will not stand a rigorous scientific inquest.

The author is able to confirm the statement that homosexuals have often been begotten by heterosexual fathers noted for their sexual excesses.

The so-called "chemical theory" of homosexuality refers to the internal secretions. The fact that the circulatory fluids contain sexual secretions is shown by grafting ovaries on male animals, testicles on female animals, the animals afterwards showing sexual peculiarities of the sex of the grafts. A case is given in which a subject had a male psyche and testicles but in every other respect was feminine. It may be said of the chemical theory that it at least promises something, especially along the lines of Abderhalden's serodiagnostic method. By the latter homosexuals may be tested with the tissues of male and female organs.

That homosexuals are not degenerates is a statement which does violence to the prevailing belief. Degenerates are recognized in part by somatic and psychic stigmata and Hirschfeld cites a page of these for the purpose of showing that they do not occur in homosexuals save in a relatively small proportion (not over 16 per cent). In nearly all these cases (32 out of 200) there was pathologic inheritance.

Thus far all evidence goes to show that homosexuality is a normal biological variation in which heredity is often in evidence. The seat of the condition must be the central nervous system, and nervous and neuropathic phenomena are very common in the families of homosexuals who themselves are often unstable in their nervous systems.

The claim that homosexuality appeared in old Greece and

Rome only after the decadence of these peoples is an error. It flourished at the period of highest culture.

Hirschfeld sums up the arguments against the degeneration theory as follows:

1. Pronounced somatic and psychic stigmata of degeneration are relatively rare in the homosexual, and the percentage is not greater than in heterosexuals.

2. Not only as a result of homosexuality but often independent of it is a marked lability of the nervous system, often expressed by periodic alternation of disposition.

3. In the families of homosexuals we often see a large number of nervous subjects as well as deviations from the normal sexual type.

4. The homosexual impulses and type are in this sense to be regarded as inherited, in the same sense as the heterosexual impulse and type.

5. Homosexuality alone can not be regarded as a phenomenon of degeneration. We use the latter term only when a number of stigmata are present. For the most part the body of the homosexual is normal, sound, harmonic and fully capable of functioning. In sexual variations in animals we find those which are not adapted for reproduction.

It is even possible to look upon homosexuality as regenerative phylogenetically because family tables show that in a given generation in which homosexuals were born the progeny of the heterosexuals was superior to the parents, threatened degeneration having been checked.

It is a fact, however, that homosexuals can produce normal heterosexual children. These are probably in a minority.

We may therefore conclude with Hirschfeld, that the true invert is a pure biologic variation, and hence inborn. It is therefore not degenerative nor can it be acquired.

Homosexuals often consult physicians for impotence toward their wives. In regard to inverted sex impulses they may be quite silent. They are regarded as ordinary psychic impotents and treated with aphrodisiacs. The homosexuals' hope that these remedies will change the

direction of the sex impulse is, of course, ill-founded. Their homosexual impulses may in fact be made stronger. A sort of temporary priapism may lead to coitus, marital or other, but there is no corresponding feeling of sex gratification. The sex feelings as stated are only further aroused to the own sex.

More logical is the use of internal secretions. Even grafting of glandular substance and blood transfusion have been suggested in this connection. By giving homosexual women ovarian substance and homosexual men testicular substance positive results might be obtained, but Hirschfeld states no facts. He is sceptical because the interrelations of the various glands can not be realized in practice, also because feeding *per se* gives no guarantee of absorption unchanged into the blood.

Some authors believe that not aphrodisiacs but sexual sedatives are indicated. The homosexual impulses seem to be stronger, more persistent, more imperative than the heterosexual. The homosexual's impulses often master him by their ungovernable intensity. Hence bromides and the newer valerians have been much used. Bromides while acting favorably do more harm than good. In individual cases valyl, validol, bornyval, etc., give excellent results for the moment.

Many homosexuals would be perfectly satisfied if they could become asexual. If the homosexual impulses could be suppressed they would have no desire to become heterosexual. From this viewpoint they are like subjects with irrepressible heterosexual desires and require similar hygienic management. The desideratum is homosexual abstinence. To secure this end we have two resources, religion and work. Under the former head faith cures may be possible (as distinct from hypnosis). Belief in supernatural intervention, prayers to saints, fighting against the lusts of the flesh, retirement (hermit life), penances, etc.—in short, life devoted wholly to pious acts has effected some cures but a very small proportion.

Of similar value is the life of an intensive worker—mental or corporeal—labor until fatigued to the point of instant

slumber. One may work out his sex impulses. In certain cases these measures give good results for a time, as the patient plunges enthusiastically into art, science, etc. But after awhile life seems empty, the subject becomes restless, and his working capacity abates. A life of sport, of athletics, operates in the same manner and with the same results.

An uneventful, hardening life—"the simple life"—with its raw food diet, and avoidance of alcohol, tobacco, coffee, meat and seasoning, has also been advocated. Good results are sometimes seen from a vegetarian regimen. But all these measures amount to little as far as general results go. When the hardest prison life fails to eradicate these impulses, the procedures above narrated can hardly hope to accomplish much. Homosexuals may have their impulses unchecked even while serving hard labor sentences.

More drastic are isolation and castration, justifiable if we regard homosexuality as an incurable insanity. Segregation in colonies is practiced for alcoholics and epileptics and has been advocated for male homosexuals; women homosexuals are not regarded as a social menace. The idea of interning men who are bodily and intellectually normal is repugnant, but has been advocated by the parents of homosexuals, and even the latter have asked to be protected from themselves. Hirschfeld cites an English homosexual who has been interned as a criminal lunatic for twenty years and at his own request. He occupies a fine room, supplied with books and pursues philosophical studies. His impulses are entirely toward boys who have just passed puberty. He expected to end his life there.

To carry out such a policy broadcast would mean the isolation of some of the world's great men, and would further require institutions with thousands of beds for every metropolitan district.

Homosexuals have asked for castration and it has been advocated but this would seem highly illogical and experience shows that to remove the testicles of a homosexual aggravates his state. As it has been done only in extreme cases the impulses were not increased but remained the

same. The additional emasculation weakened the patient's will and made him, if possible, more of a menace than he was at first.

Hypnosis, as inaugurated by Krafft-Ebing, has already been alluded to. The hopes entertained by this author have not been realized. Some alleged cures occurred in pseudohomosexuals, others in genuine homosexuals were followed by relapse. In some cases the impulse was transferred from one object to another—this may simply be a joke. A man after hypnotic treatment was no longer attracted by cavalry men but artillery men took their places.

Psychoanalysis, the Vienna method, consists in re-awakening the heterosexual element believed to lie dormant in homosexuals, every individual having a bisexual anlage. The heterosexual complex has been suppressed and may be reconstructed by psychoanalysis and by dream studies. The subject must become fully conscious of the unconscious or half conscious deeply anchored feelings. Some of Sadger's cases may be cited in which brilliant results are claimed. For example, a homosexual with marked masochistic tendencies attracted by boys between 14 and 20 years of age, had a very bad family history. The mother and father presented contrasexual features, and a deceased sister was a tomboy. A cousin on each side showed bisexual traits and an uncle was insane. Patient, aged 21, could remember that as a young child he liked girls and women. However, he played with dolls. His pelvis was wide, face but poorly bearded. He was impotent with women. He was diagnosed as a typical invert. Psychoanalysis brought out the following: First object of love was the mother. He was first drawn sexually towards women, not one but many, and at puberty dreamed of women. At this period he was so attentive to girls of his own age as to be a source of trouble to his mother. He had also had early homosexual impulses. Facts of this sort had been forgotten and were remembered only after painstaking analysis. Sadger claimed a radical cure in this case.

Hirschfeld, who could have made this case one of bisexuality, does not fall back on this resource. He does not

believe the patient was cured. He has seen many such cases treated by psychoanalysis, including some of Sadger's. Almost without exception they described a peculiar feeling that their trouble had been removed. In no case, however, did they have heterosexual impulses. Stekel has never seen a complete cure, and Sadger himself mentions cases so deep-seated as to be beyond analysis.

Moll uses the term "association therapy" for a comparatively new method which involves psychoanalysis. To illustrate with a case: A homosexual man married two years wished especially to impregnate his wife, who longed for a child. He was unable to get erections despite the fact that he had given up homosexual relations. All measures were tried, ending in the reading of erotic books, contemplation of beautiful female figures. He then made a radical change—read homosexual literature and contemplated male figures. Becoming greatly excited he went into his wife's room and succeeded for the first time in coitus.

Moll's method is essentially one of transference of this sort. "There is an association bridge" between the normal and inverted. This can be utilized in the manner described. The reading of deMaupassant, a homosexual, arouses the sexual centre of the homosexual. Moll contended that the homosexual man should associate with young budding maidens as much as possible.

Hirschfeld regards this method as illogical throughout. He says, "As well might one heal a color blind or a deaf mute by association processes". Moll confounds cause and effect. The method suggests fetichism; as when a man who loves constantly a woman who repels all others is said to have acquired a tolerance for her ugliness when in reality the latter as a fetich was that which originally attracted him to her.

Hirschfeld believes that psychotherapy is helpless against the mass of homosexuals. He evidently has strongly in mind the true invert, the object homosexual in Sadger's sense. If one assumes this position in the narrower sense, all are agreed regarding its incurability. Its incurability then ranks with idiocy and imbecility.

The intermediate theory (sexual transitions) is a theory that homosexuals form a body of individuals intermediate between males and females—so-called psychical hermaphrodites—is visible in the earliest writers. The classical hermaphrodite as the name implies did not deal with physical malformations but with beings who combined the physical attractions common to or peculiar to both sexes. Bacchus or Dionysus was of this type and some authors mean by a Dionysian a being which could pass for a youth or maiden alike with proper drapery. According to one fable Bacchus had the sexual organs of both sexes. The numerous references to homosexuals and homosexual acts show that homosexuality was regarded as a natural phenomenon, freak of nature, disease, but not at all as a crime or vice (the perversities of normal men are, of course, not included here).

Christianity went to the opposite extreme and punished such acts by whomsoever committed with death—burning alive in some cases. This view, still in force, has prevailed for two thousand years.

In the nineteenth century the bisexual character of the embryo was fully recognized. The monosexual fetus springs from a bisexual embryo.

Ulrich, the well known homosexual, anticipated Hirschfeld and Krafft-Ebing in developing the theory of sexual duality, according to which each monosexual individual carries a germ of the other sex which only comes to light in hermaphrodites and homosexuals.

The sexual transition forms comprise men with female traits; females with male traits. To differentiate between the two sexes it is necessary to consider four groups as follows:

1. Sexual organs.
2. Other somatic qualities.
3. Sexual impulse.
4. Other psychical qualities.

An "absolute woman" would be one which not only produces ova but in every other respect corresponds to the feminine type. An "absolute man" produces spermato-

zoids and has every masculine attribute, i. e., in both sexes the average attribute. But such absolute representatives are only abstractions which have never been realized in life. Every man possesses feminine residues, due to his feminine origin, just as every woman has masculine residues. If we suppose for argument's sake that an absolute man or woman represents 100 per cent, then in life we find percentages which represent every variation, these variations representing transition forms.

Transition in the formation of the genitals includes true hermaphroditism (extremely rare) and pseudohermaphroditism. The recorded material up to 1908 was published by Neuebauer.

The second classification based on other somatic attributes has already been considered. Males have female breasts, hair distribution, larynx, pelvis, skeleton, musculature, and vice versa. These inversions may be found throughout the entire body. Thus if we isolate an average feminine hand type we shall find it in some males, and so on with the dentition, complexion, etc.

Within normal limits there are sex variations in the sexual impulse. Thus while man is instinctively the incubus or individual who lies upon, and woman the succubus or one who lies beneath, some aggressive women assume the incubus position, often with sadistic accompaniments. Femininity in man is also seen in the choice of women who are mannish, who are older, more intellectual than himself. Women show a masculine mixture when they are impelled to youthful, delicate men who approximate the female type.

Finally we see women who are attracted not only to feminine men but to masculine women and vice versa. Here the normal sexual passes into the bisexual.

In regard to psychic qualities other than the sexual impulse we see men with feminine psyche and modes of feeling, mode of life, tastes, manners, sensitiveness, handwriting and vice versa. The change of stigmata is often seen in the elderly.

The transition theory can make good only when an explanation is forthcoming as to the cause of the variations.

For such an explanation we should first have to study heredity which as is well known accounts for other kinds of mixture by double inheritance, latent and alternating inheritance, etc. The son, for example, tends to follow both female lines, the daughter both male lines (son inherits from mother's mother and father's mother, etc., and vice versa.) In association with the laws of inheritance the bisexual anlage of the embryo is involved.

The transition theory is the one proposed and advocated by Hirschfeld and has been subjected to criticism by adherents of other views. In defending it Hirschfeld insists that feminine traits are not always on the surface but may have to be elucidated by deep probing.

A claim has been made that the transition theory accounts only for feminine homosexuals.

Mantegazza's theory of abnormal distribution of the nerve erigentes does not apply to homosexuals as a class, and the view of Schopenhauer that homosexuality is essentially a condition of immature and declining years, before and after the reproductive cycle, is founded on erroneous observation.

The simplest remedial measure, if this condition is curable, would appear to be heterosexual substitution, preferably by marriage. From the foregoing text one can see such treatment is doomed from the start. Homosexuals may marry and live with their wives and even beget children, but the sexual impulse is not a whit changed thereby, and his life to him is an unnatural one. Moreover from the eugenic standpoint homosexuals should not be encouraged to have children.

In connection with marriage or heterosexual relations, hypnotic suggestion has been extensively practiced. Hirschfeld relates cases (not his own) in which extremely feminine homosexuals were hypnotized during years in an attempt to render them heterosexual, naturally with negative results. Another practice in certain quarters is to prescribe alcohol to homosexuals before attempted normal intercourse, as has also been the custom in ordinary psychic impotence. In certain cases this plan is temporarily effective in a small per cent of homosexuals.

Sadger claims that the homosexual lacks desire, will and faith in the marriage therapy. Not once in a thousand times does a homosexual voluntarily consult a medical man with a view to being cured. Homosexual women are even "worse" from this standpoint.

All treatment of homosexuality is recent in history, and it is still as good as nonexistent in the case of homosexual women. Hypnosis and Freud's psychoanalysis have largely been confined to males.

The women whom male homosexuals are advised to marry are temperamental, with active heterosexual impulses. Hirschfeld as usual gives cases of these misalliances. A male homosexual consulted a physician who, finding he had erections, advised marriage as a probable source of betterment, cure not being promised. Another physician gave similar advice but with the suggestion that marriage might turn out badly. The patient took their advice in the hope and wish that his sex impulses might be changed. He was potent, but looked on coitus as a burdensome duty, not a pleasure. For his wife he feels love and admiration for her qualities, her physical charms he recognizes, but the feeling is one of friendship. She recognizes his lack of sexual love, and says that he and she have no common soul life. The husband lives in constant fear that his wife's relations will find out his true nature and banish him, which in turn would hold him up to the scorn of the community.

Nevertheless Moll believes that marriage can cure homosexuality. In some marriages the homosexual male has even sought his former male companion on the night following the wedding day.

The desire for a home of their own has influenced male homosexuals to marry. Their impulses would naturally lead them to cohabit with males, but their intense longing for a refuge, for some place to receive their friends, they marry women. In all save sexual relations they make ideal husbands. The homosexual woman has little of this longing for home and bears solitude much better. However, she may desire a protector. The relation of brother and sister may exist between married homosexuals and hetero-

sexuals. In unions of these types the male often does the feminine work and vice versa. Convenience marriages occur, as when a homosexual man needs a woman for his business. Male homosexuals sometimes desire children. The more virile among them may wish to hand down to them a business, firm, dynasty (in titled subjects), wealth, distinguished family name, etc. A very powerful motive may be the prevention of exposure, the doing away with suspicion, etc., etc.

As already stated, 16 per cent of the 1,000 homosexuals studied by Hirschfeld married. In about one-half the motive was social reasons, business reasons, desire for a comfortable home, request of parents, etc. In one-fourth the motive was hope of cure. Some married from ignorance of their true condition, others because of friendship and comradeship with some women. It recalls the belief of many that *all* convenience marriages (between homosexuals) are unnatural.

The one thing lacking in the homosexual marriage is the absence of spiritual oneness. Those who hold with Kant that an unmarried person is but half a person and that two such people are required to make a human unit will understand the folly of a homosexual marriage. Male homosexuals who are potent can beget children, as their semen is normal. The birth and rearing of children being the true *end* of marriage, a homosexual man or woman can act in this capacity and the union will be happier and more stable. The children may or may not show homosexual tendencies but they show hereditary taint of some sort. A homosexual would prefer to die rather than to beget a homosexual child because of his own miseries and persecution.

"Involuntary repugnance" is no longer grounds for divorce, hence the wife of a homosexual has little redress from courts. Whether from ignorance or full knowledge of his own condition, the homosexual man may impose upon the woman, and as in the case of a mere impotence, she will regard herself as betrayed. There are women, however, who are ready to waive these sexual rights but these usually live to regret their action.

In recent years some authors believe that the best solution of the problem is a marriage between homosexuals. Hirschfeld knows personally of fourteen such marriages; of this number three soon ended in divorce, four in separation, and five other couples regretted the step. But two couples seemed satisfied.

It is only the pseudohomosexual who can benefit by marriage. Thus a bisexual man or woman could be weaned away from homosexual relations. For the true homosexual "marriage is hell" (Féré).

By living single, as Nature intended, the more intellectual homosexuals are favorably situated to do good work and contribute to the world's progress. This privilege they have in common with all celibates.

"Brothel therapy", or heterosexual relations without marriage, is the worst advice of all as the homosexuals are made to acquire venereal diseases, and perhaps beget illegitimate children.

Adaptation therapy is Hirschfeld's general choice. Since we can not be therapeutic nihilists some efforts must be made for the relief of the homosexual who comes to us for aid. They are, as a rule, obsessed by fears as to their safety. The "sword of Damocles" hangs over them. They "dance upon volcanoes". When they seek advice they are often unable to tell the medical man their story. They leave the waiting room before their turn. They tell the physician some other story of petty or imaginary ills—headache, insomnia, etc. They may complain of piles or impotence. They dread hostility on the physician's part or scepticism. "You imagine these things." "You have been reading Krafft-Ebing". "Your troubles are the result of masturbation." The medical man may prescribe aphrodisiacs or go through the formula of hypnotic suggestion. The homosexual is not deceived; he realizes that such a man can do nothing for him.

The expert physician will cross examine the patient along the lines of the examination blank, and in that manner decide whether he is dealing with a true or pseudohomosexual. Despite all precautions this is not always possible at

the outset. The physician in all such doubtful cases must go at first on the supposition that the patient is heterosexual, and do all that is possible to strengthen these impulses. The possibility of bisexuality must next be considered. Once decided that the patient is a genuine homosexual his mental state must be quieted by telling him he is unfortunate but not to such an extent as he believes. He may still live a useful life and be of value to society. Many distinguished homosexuals have gone through life without general recognition of their condition by their contemporaries.

Depressing attempts at cohabitation with the other sex should be given up. Neither aphrodisiacs nor bromides should be given, and above all morphin should be avoided. Such remedies depress the nervous energies.

Of great value is a general sanatorium sojourn to build up the nervous resistance. There is a possibility that a settled melancholia may set in with suicidal termination.

An entire library of reading is recommended, comprising celebrated works on friendship, some of which are by homosexuals (most of these are not accessible to the average American reader). Acquaintance with homosexuals *of character* is desirable. Psychical friendship may thus replace corporeal relations. The so-called "sublimated homosexuality" is the goal of these efforts. (Hirschfeld as a rule says but little of the existence of this condition and gives no statistics as to its frequency.)

Sports, games, hobbies, the arts and sciences, aid in diverting the mind from the body. Above all the patient should shun the society of the homosexual who indulges himself sexually.

Continence is naturally very difficult for the homosexual whose repressed impulses may burst forth as a result of psychic tension. This may be expressed by painful and defect states—persistent headache, insomnia, inability to work. In some cases a homosexual act causes immediate and complete disappearance of the picture. The medical man must meet these arguments with the great personal risk run—the possibility of punishment, blackmail, infection.

All arguments in praise of heterosexual continence should be used here. "Resignation or risk" is the alternative.

The homosexual asks advice on most weighty questions. Should his parents and relatives be informed? Should he move to some country in which he will not be conspicuous? Should he resign from the public service, retire from business, etc.? Emigration is no doubt a matter of great importance. It has always been a resource for homosexuals. Very many English and German homosexuals have moved to South America. Northern homosexuals flock to Latin resorts. In certain cases the sojourn is temporary. Places are visited in which prosecution is not feared. At home their record is clean. Homosexuals delight in "week ends" to other shores.

Should the medical man who must consult his patient's welfare recommend these excursions abroad? It is well to warn them that they are never entirely safe anywhere. In strange countries they may encounter the blackmailer who can expose them at home. At some refuges for homosexuals organized blackmail has flourished. The mental state of the homosexual is relaxed by these sojourns. He is no longer conscious of the possibility of arrest and exposure. This, of course, is the only justification of the medical man in sending him there.

Very different is the idea of permanent removal. Once more the homosexual has his fixed abode, becomes a member of a foreign colony, the members of which may recognize his character. Once more he becomes isolated after an initial warm welcome. A homosexual may say at last "home without legal rights is better than a bird-free life abroad." Homesickness, longing for relatives affect him as others. He may not know the language of the country and his ignorance of their customs may become a burden. He is an exile.

The homosexual should keep himself busy, should work intensively not only for the discipline but also to show himself a man to his relatives. Self-confidence is indispensable. To some very near relatives he should confide his troubles, either *per se* or through his physician.

The homosexual who has lost freedom and good name, situation and property, is in a particularly bad condition. They may be dismissed from the services and bureaus without pensions. This type are in especial need of expert medical advice, but are a nuisance to some physicians in that they always dilate on the miseries of abstinence. The medical adviser must stop short at a certain point as his advice may be harmful in the long run. Elderly men are more likely to benefit by change of country than younger ones.

The sufferings from abstinence are not to be dismissed lightly, because such subjects may develop severe psychoneuroses. Persecutory delusions occur. Everyone recognizes them, is in league to injure them. This is seen especially in traveling about. Hotel employees, etc., recognize them with practiced eye and betray them to other guests. The victims blush, are embarrassed continually. Everyone notices their walk, etc. These subjects often have no refuge but alcohol, the worst possible course. They neglect to consult the medical man, and when they do are hard to deal with by reason of the fixed character of their delusions.

Subjects who move to warm countries must know of the venereal peril in such places which is more deadly because of the customs of the natives irrespective of sexual impulse. In Oriental lands the worst forms of homosexual relations flourish, and those who associate with homosexuals show a high percentage of venereal disease. In European countries the homosexual enjoys some immunity from disease in comparison with the heterosexual.

In conclusion the physician is to treat the homosexual but not homosexuality, and that by adaptation. He can not master nature but he can minister to the victim.

What we have learned about homosexuality from psychoanalysis may be comprehended in a few axioms. The first and most important step in the deeper recognition of this impulse-direction was the assumption by Fleiss and Freud that every individual goes through a bisexual stage in childhood; the homosexual component being later suppressed, and only traces remaining in a sublimated form,

expressed in friendship, communal existence, etc. The unsufficiently suppressed homosexual component can under certain circumstances again become manifested, expressing itself in neurotic symptoms, and especially in paranoia, which recent investigations comprehend as a disfigured manifestation of inclination to one's own sex.

A new viewpoint which simplifies the comprehension of homosexuality is due to Sadger and Freud. Sadger discovered in the psychoanalysis of several male homosexuals that in their early childhood there were intensive heterosexual longings; that the Oedipus-complex (love for the mother, intense hatred for the father) was especially intensive in expression. He thought that the homosexuality which later developed to be only an effort to restore the original relationship of the mother. In the homosexual object of the desire the homosexual unconsciously *loves himself* and again unconsciously represents the female rôle of the mother.

Self-love in the person of another, Sadger terms narcissism. Freud shows us that to narcissism must be assigned a much greater and more general significance, and that every person must go through a narcissistic stage of development. After the stage of "polymorphous-perverse" autoerotism, and before the actual selection of an object of love, every human being takes itself as an object of love, which reduces the previous objects to unity. The homosexuals "fix" this narcissistic stage more intensively than others; their own type of genitals is sufficient throughout life as a condition of love.

But all these important cognitions give no explanation of those peculiarities of sexual constitution and the special experiences which underlie manifest homosexuality. Ferenczi*, after much cudgelling of his brain confesses that he has been unable to throw further light on this subject. He presents a few experiences and viewpoints which in the course of several years of psychoanalysis of homosexuals have obtruded themselves spontaneously and which may be

*Ferenczi, "Nosology of Male Homosexuality (Homoerotik), Internat. Zeitsch. f. ärzt. Psychoanalyse, 1914, ii, 131.

adapted to facilitate arriving at a correct nosological arrangement of homosexual conditions. One steadily gains the idea that homosexuality does not represent an essential thing but only a symptom, which may be a manifestation of the most varied psychic maladies and developmental disturbances, perhaps also an expression of normal soul life. Hence we can not force into a clinical entity all which pertains to that collective name homosexuality, with its "active" and "passive" expressions, its "inversion" and "perversion". Such different conditions may have in common one striking symptom. A passive homosexual alone deserves the "invert". He reverses normal intercourse both in its physical and psychical aspects, and he alone is a hybrid between the two sexes. A man who when among men feels himself a woman is inverted throughout, not sexually alone (*i. e.* sexual intercourse). It is otherwise with the genuine "active" homosexual. He feels himself to be a man, is for the most part very energetic and active, with nothing feminine in his somatic or psychic make-up that can be discovered. Only the *object* is exchanged. He is an object-homosexual, while the preceding type is a subject-homosexual.

A further striking difference between these types is this: the true invert, or subject-homosexual, feels attracted rather to mature, powerful men, while with women he feels friendly, almost "colleague-like". The object-homosexual on the contrary is almost exclusively attracted towards young, delicate boys of feminine appearance, while towards women he feels an antipathy which amounts at times to hatred which is barely concealed or not at all. The true invert seldom consults a physician, as he is satisfied to remain as he is and only wishes to be let alone. He has no internal conflict. He pursues his love affairs for years, and fears only external dangers and exposure. His love is entirely feminine, and he wishes chiefly to be admired for personal and other qualities by his beloved. He is not passionate or egotistical in his affection.

The object-homosexual is vexed at his condition. His sexual life does not satisfy him, his conscience reproaches

him. He overprizes his sexual object. He seeks relief from physicians, and often changes his relationships in the search for an ideal.

Individuals of the two types may form a union. The subject-homosexual is perfectly satisfied with the other, but not so the object-homosexual who has always before him the mixture of male and female.

The invert is a true developmental anomaly (Hirschfeld), while the object-homosexual is on the contrary a neurotic, a *victim of compulsion neurosis*. The deepest strata of the soul and the oldest traces of recollection may be common to both but in the later development they diverge widely. We can delve deeply into the soul of the invert and find everywhere the tokens of his inversion—the abnormal feminine nature. As a small child he fancies himself in the situation of his mother, not of his father. The Oedipus-complex is inverted, or he wishes his mother dead, so that he can take her place with his father. He longs for her clothing, her beauty, etc. He is jealous of her, claims all the father's tenderness. He plays with dolls and dresses as a girl. The constitutional inversion may be intensified by surroundings, as in the case of only children who grow up among women. The self-love of the child may also lead to its being coddled, and thus a vicious circle comes into play; similarly his girlishness leads to his being petted. The father's latent homosexuality may be unconsciously aroused.

As to the fate of these inverts there is nothing new to say. The desire for smelling is strongly developed and works in both directions, so that they are attracted to the ill-smelling as well as perfumery. They are repelled by the sight of blood, are very suggestible and readily hypnotized. They sometimes ascribe their first seduction to hypnotic power. In psychoanalysis they show no affects by which they might be reached and are, in fact, not to be cured by this resource. They may, however, be influenced thereby, for the invert is often in a state of pathological fear. He also knows himself better as a result of an analysis. Even after a superficial analysis the object-homosexual shows a differ-

ence. The briefest examination brings out the compulsion neurosis. He is pervaded with imperative concepts, regulations and ceremonies. Hate and love are confounded. His homosexuality is shown by analysis to be throughout an entire series of impulsive sensations and actions by which the normally sexual becomes abnormal. His history as brought out by analysis is as follows: sexual precocity which was heterosexual (Sadger finds the same); Œdipus-complex normal; wished death to father—cruel death. Intellectual precocity. Numerous theories of sex in childhood. Aggressive. Unusually strong anal eroticism and coprophillia. Was severely punished by parents for attempt at sexual intercourse in childhood. On subsequent occasions had to suppress his rage. Later on account of these impulses he learned to avoid girls and women and associated only with boys. At puberty turned again towards girls but out of fear turned back to boys. In some individuals there was at puberty a heterosexual riot when circumstances made this possible. Daily intercourse kept up for months, sometimes on stolen money, girls impregnated, etc., ending in disgrace. In either case the impulses became directed to the own sex, the feminine boys.

Some of these subjects are promptly cured by analysis if the "transference by the physician is positive". But at the slightest mental conflict the patient is lost for the time. He returns to homosexual life but his resistance has now improved and the analysis now begins in earnest. If the "transference is negative" the battle is a long one. This is likely to be the case when the condition has been largely brought about by external influences.

Of special mechanisms Ferenczi mentions one man who when injured or insulted by some man took his revenge on the world by committing pederasty. So the compulsion to flee from women for fear of harm leads to compensatory hatred of man. This, of course, represents an "overcorrection".

Ferenczi has not yet cured the worst types of these cases, but he has greatly improved their symptoms so that they no longer feel hatred and nausea towards women. There is

also at times a restoration of potency toward women, and in some cases there is an oscillation of the direction of the libido. As all compulsion neuroses are curable by psychoanalysis there should be no exception here.

The number of object-homosexuals seems to be constantly increasing and this is a social phenomenon which demands an explanation. It represents a reaction against something, and Ferenczi believes that homosexual inclinations have been over-suppressed. A sublimated homosexuality makes for friendship, fraternity and altruism. German students disfigure each other with their *schlägers* as if in protest against any feelings of sentiment between men. We still have the friendship of political cronies, of lodge brothers and we have hero worship, but these are only traces of universal homosexual tenderness.

To the few medical men who have much to do with inverts certain character traits constantly assert themselves. Above all is their great insincerity. They demand a remedy for every variety of nervous complaint which can not be readily explained. If interrogated concerning the usual causes they deny everything. The monstrous case of an action without a cause! Under such circumstances the author tries a surprise. He asks abruptly: "Are you not an Urning?" It often happens that in his surprise the patient answers affirmatively and thus clears up the mystery. This dishonesty of the homosexual is somewhat typical; and if it is not known to the profession at large it is because the homosexual has great timidity about consulting a physician who is not himself an invert. This behavior is natural because of fear of the law and of blackmailers, and is not peculiar to the invert. From another viewpoint this shyness of the invert resembles that of a woman when sexual matters are concerned. In both classes the sex impulses have to be suppressed. Even the most upright woman shrinks from disclosing her menstrual troubles or her suspected pregnancy. Society forces her to suppress her natural longings until a man proposes marriage, and thus forces her to lead a life of hypocrisy and dissimulation. With the invert it is not a mere social convention but actual

fear of exposure and the House of Correction. Normal men themselves become fearful liars in sexual matters when they have sexual or venereal troubles.

Before consulting a physician, perhaps one whom other inverts recommend, the homosexual often indulges in mystification, writing "cipher" letters until he has obtained some pledge of the medical man's discretion. At the first interview, while on the point of a full confession, the invert will keep back the most pertinent facts, and admit only such as will not compromise him. Hirschfeld years ago called attention to the fact that inverts decline to go deeply into the subject.

A peculiarity of the homosexual, shared, however, with women, is a high degree of self-love or narcissism. Sadger¹ has enunciated that "the road to homosexuality leads through narcissism". They love to color their acts in fine hues and to brag about them. They are idealized rather than true. They romance over advantages which they do not possess, for example a noble origin, which have absolutely no foundation in fact. They have an uncommonly strong tendency to write autobiographies, which they imagine to be of sufficient interest for the physician to transpose and publish. In some inverts for reasons of self-love there is a longing for confession. An unknown invert may submit a bulky manuscript perhaps in verse giving a pathetic account of his magnanimous existence—highly mendacious, however.

Here is the place to discuss the self-descriptions of inverts which adorn many works. Whosoever, like Sadger, has spent years in the psychoanalysis of compulsion neuroses and hysteria, and has encountered every kind of perversity, even those most unexpected in the patient, who has never breathed a word concerning them, will at once be convinced that these autobiographies of celebrities with their new editions "enlarged and improved" hardly contain the plain truth. The authors wish to be as the physician sees them—not as they are. They do not seek for the cause and nature of phenomena but only record their fancies about them. The self-descriptions of inverts are worthless in that

they omit everything that might possess actual value. To refer to the homosexual's autobiography, often quite ready for the press, as a guide to a psychoanalysis, and then after the first few weeks of analysis to compare the two, will show clearly that the homosexual has no self-knowledge whatever. Even with the best intentions he lies. We know that all men lie, unconsciously or consciously, where sexual matters are concerned—consciously when their acts are shocking or when the truth would wound their vanity. Reading works on homosexuality causes the invert to falsify his own experiences which he may alter to those which he reads. Raffalovich justly says that every invert knows well that his inversion goes back to his earliest recollection and has given its tone to his entire existence.

Sadger gives us some strictures on the movement toward tolerating homosexuality. He believes in protecting minors to some extent, but grown people should be punished for overt acts just as normal individuals are punished for natural sexual offences. However, the laws should protect homosexuals from extortion and the resulting suicide; "scientific enlightenment" of the public which makes of an invert a noble martyr is another matter. The idea has been carried to such a point by some inverts that they see in themselves the genuine normal man—even super-man—while ordinary mortals are defective. They cite great men who were homosexual but Sadger does not regard these men as genuine inverts. To him they are ordinary men with a certain infusion of homosexual attributes. This movement for the scientific toleration of inverts is calculated to produce a powerful reaction.

The invert falsifies in his claim that for the most part inverts are moral and resist their temptations. If he leads a virtuous existence it is, as with the normal man, a matter of sour grapes, of making a virtue of necessity. Advances toward a heterosexual man (which is the rule) are quickly repelled and the invert may face a prosecution. With the invert as with the normal man platonic demonstrations lead surely to gross sexual acts. Impotence is the only barrier. Similarly the notion that clubs of inverts are maintained as

"debating societies" is ridiculous, as the author's patients admit.

A part of the propaganda for toleration of inversion is bound up in the teaching that it is congenital and incurable. Freud and Sadger have demonstrated that inverts have periods in their lives in which they are intensely attracted to woman with all the feelings of genuine love. This gives us something to work on, to rehabilitate this state of mind. From the teaching of scientific enlightenment the invert is barred from all hope.

The invert should be taught that the earlier he seeks a psychoanalysis, the better the outlook for cure. The older an invert, the more he has been sophisticated with "scientific enlightenment," the less will he have to be cured, and does not hail the opportunity to take a chance. His remaining desire is to be made respectable by law. An invert in the thirties is old for psychoanalysis. He has been inverted for so long a time—and has gotten away with it—that he looks forward to no other life.

We see in neurotics and perverts one "soul" which wishes to be freed and another which prefers to remain in *statu quo* because sexual gratification comes only in a certain way. These subjects believe that psychoanalysis can not prevail over degeneracy. Sadger reasons with them by citing the phthisical habitus—the congenitally misshapen thorax, etc.—and asks if this handicap should deter us from trying to cure consumption or the tendency to it. To a certain extent this teaching holds good for inversion.

The homosexual has all the bad qualities of woman and but few of her virtues. He is vain, he gossips, lies, and has a passion for intrigue. So an invert expressed himself to Sadger. The latter, while he does not fully endorse it, can not deny that it contains much truth.

Several years ago Freud found that a large group of so-called homosexuals were not complete inverts from birth, that such individuals at one time in infancy had sexual impulses toward both sexes. Occasionally he found inversion came about from absence of the other sex, or it was but a temporary developmental episode or that it occurred as

the result of some distressing heterosexual experience. In popular language both pseudo and true homosexuals have been called "degenerates," probably from no other reason than an etomological one; the term *degenerate* in most lexicons indicates a state in which the individual does not live true to the type, that is, he does not follow the usual fundamental law of sex characteristics and opposite sex selection. But the term has been popularly extended to indicate that the homosexual individual is in possession of many variations of traits and characteristics aside from sex inversion. Used in this connection the term has been very unfortunately used and should be entirely excluded unless there occur together a number of severe departures from the normal, and the functional efficiency and capacity for existence are in general greatly prejudiced. Often inverts show no other severe deviation from the normal, aside from the sexual one. As is well known, it is frequently present in those distinguished by high intellectual development and ethical culture. In point of fact history abundantly attests the presence of inversion in all the old races at the height of their culture and it is also uncommonly widespread among many savage and primitive people in connection with whom the word degeneration is and should not be used.

A congenital origin should be reserved for that type of invert who from his very first recollection and the history from other sources has shown the presence of the complete physical and mental characteristics of the opposite sex and a sexual inclination entirely to the same sex.

For the object-homosexual who most frequently is the active agent in a sexual aggression, this law can not be substantiated. In many such it is found that external promoting and inhibiting influences of life lead sooner or later to the fixation of the inversion, such as the exclusive association with the same sex in barracks, prisons; etc.; fear of danger from the opposite sex, etc. The fact that inverted impulses in such individuals are abolished by hypnotic suggestion should occasion wonder in a congenital affection. Even in many so-called congenital inverts one often finds a history of some experience in early life which

gave a wrong direction to the libido. It has been objected, however, that many children have sexual experiences such as seduction, mutual onanism, etc., without becoming permanently inverted. The truth of the whole matter probably lies in that neither the congenital or acquired theory fully explains either the true or pseudo invert. We are finally thrown back upon the assumption that both classes of individuals have at birth a bisexual anlage as shown here and there by the birth of hermaphrodites. We are entitled to assume that there is a psychic hermaphroditism. But even this hypothesis fails to account for all the inverts of both types, as both are mutually exclusive. Many male inverts preserve a masculine psyche, have relatively few characteristics of the other sex and seek in the sexual objects the feminine traits.

While most readers of this critical review undoubtedly are acquainted with Freud's conception or *raison d'être* for homosexuality, in order that one may appreciate the subsequent development of our present conception of paranoia which flows out of this theory we need to look at the hypothesis a little more clearly. According to Freud's interpretation the determining factors, especially in the object-homosexual, are two: the love for the mother, and the love for one's own body. It is assumed that these two components,—the mother complex and narcissism,—are invariably present, the latter following as a further stage of sexual evolution as a consequence of repressing the mother ideal and taking over from her the mother love in the form of his own person; thus his own body becomes the object of his love. Later the individual, through associations of similarity, extends his object of love to other persons of a sex like his own and there is finally begotten the state of homosexuality. This conception has been further modified by Burrow,² who states that the child looks upon itself from the mother's standpoint of love and therefore loves his own body as though he were the mother (primary identification) herself. Hence homosexuality is nothing less than a heightened subjectivity. It is an accentuation and a fixation of the original subjective mode in virtue of which the

individual remains in an attitude of identification with respect to the mother which leads to his objectivation of himself. Hence every negative or latent homosexuality is synonymous with a neurosis. By such a conception one eliminates much of the objections that the former theory fitted the male homosexuality but not the female. Burrow's contention would relieve one from many postulates of the physio-biologic origin of homosexuality and place the state more or less definitely upon a genetic psychobiologic one. The matter is the more important as one recognizes that out of a correct understanding of the genesis of development and homosexuality will flow a clearer knowledge of psychosexual infantilism and many of the active phases of neuroses and psychoses, and especially the paranoid states.

Next in importance to the recognition of the homosexual element in many of the neuroses comes the modern interpretation of the whole paranoid state. Freud³ several years ago undertook to outline the mechanism of the disorder as follows: Originally impressed with the frequency with which the homosexual wish phantasy was associated with paranoid symptoms he asked Jung and Ferenczi to investigate their cases with this view in mind; their material bore out Freud's hypothesis in a striking manner, namely, that in development of the sexual instinct there is a stage between autoeroticism and love of an object in which the individual takes his own body as an object of love; this is called "narcissism". This stage is perhaps a normal intermediate one in the development of the sexual life, but a considerable number of individuals show a tendency to remain in it longer than necessary. In this stage, the genitals play an important part in the phantasy life. The further course of this tendency to linger in the intermediate stage is by way of the choice of an object with similar genitals, thus the homosexual choice, to homosexuality. Those who become really homosexual never get free from these inclinations. Those who do attain to heterosexuality have this homosexual tendency turned to new ends; it appears combined with the ego instinct and aids in constituting the social instinct and contributes to friendship, comradeship.

and human sympathy, in other words, it is sublimated. Freud now refers to a principle he previously enunciated in his "Three Contributions to the Sexual Theory, namely, that every stage in the development of the psychosexuality affords a possibility for 'fixation' ". "Persons who are not completely free from the state of narcissism thus possess a fixation which can act as a predisposition to disease, are exposed to the danger that a flood of libido which finds no other outlet may sexualize their social instincts and thereby make regressive the sublimations won during development. Toward such a result everything can contribute which calls forth a backward flow of the libido (regression) either on one side a collateral strengthening through disappointment in the woman, a direct damming back through misfortunes in the social relations to the man, both cases of denial, or also a general increase in the libido which is too violent to find satisfaction in the ways already open and therefore breaks the dam at the weak point in its structure. Since analyses show that paranoics seek to defend themselves against such a sexualization of their social instincts, we are forced to the assumption that the weak place in their development is in the part between autoerotism, narcissism and homosexuality, that here lies their predisposition to disease." Thus we see that the nucleus of the conflict in paranoia is the demand for the homosexual wish-phantasy to love the man. It is noteworthy that the chief recognized forms of paranoia can all be represented as contradictions to the sentence "I (a man) love him (a man)"; indeed, they exhaust all possible formulations of this contradiction. The delusion of persecution contradicts it by proclaiming: "I do not love him, I hate him." This contradiction can not become conscious to the paranoic in this form. The mechanism of the symptom formation in paranoia demands that the inner perception, the feeling, be replaced by a perception from without. Thus the sentence changes from "I hate him" by projection into "he hates (persecutes) me, which then justifies me in hating him." The compelling unconscious feeling thus appears as the result of a perception from without, "I do not love him, I hate him

because he persecutes me.''' Observation leaves no doubt that the persecutor is no other than the former beloved one.

The foregoing is in brief a digest of the essential mechanism of the paranoid state. Various elaborations of kindred mechanisms give us a better understanding of the syndrome of erotomania, delusions or jealousy, the general symptom formation in paranoia. This and more to the point may be gained from the elaborate contributions, clinical and theoretical, by Freud,⁴ Ferenczi⁵, Maeder⁶, Bleuler⁷, Grebelskaja⁸, Bjerre⁹, Spielrein¹⁰, Wulff¹¹, Morichau-Beauchant¹² and others, which have been and are still being digested by Payne in a critical review of the Freudian contributions to the paranoia problem which is running in the several numbers of the *Psychoanalytic Review* and to which excellent abstracts the reader is referred for the latest views and elaboration of the whole subject.

Finally, I believe sufficient data have been set forth in this article to show that homosexuality in men and women must be studied still more in detail by neurologists and psychiatrists, as it is taking on new phases of utmost clinical importance to both in their further research of the neuroses and psychoses. Homosexuality is really but a part of the still larger problem of the normal and abnormal development of the psychosexual life which lies at the very foundation of the science and understanding of human behavior and conduct.

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PROCEEDINGS OF THE INTER-HOSPITAL MEETING,
HELD AT THE BUFFALO STATE
HOSPITAL NOVEMBER 18-19, 1913.

Besides the staff of the Buffalo State Hospital, there were present from Rochester State Hospital: Drs. Pierson and Walker; from Gowanda State Hospital: Drs. Gray, Potter and Schenkelberger; from Binghamton State Hospital: Drs. Chapman, Gillespie, and Tiffany; from Utica State Hospital: Drs. Hamilton and Zimmerman; from Willard State Hospital: Drs. Priestman and Smith; from the Psychiatric Institute: Drs. Hoch and Wright; from the Bureau of Deportation: Dr. Van DeMark; from Providence Retreat: Dr. Twohey; from the city: Drs. Bowerman, Burlingham, Crego, Eckel, Fairbairne, Jewett, Kaufmann, Lennon, Matzinger, Mead, Nairn, Russell, Schley, and Sharp; from St. Lawrence State Hospital: Dr. Levin and Dr. Taddiken.

Dr. GEORGE W. GORRILL read a paper on "**Combined Psychoses**," published in full in the *STATE HOSPITAL BULLETIN*, Vol. VI, pp. 423-440.

Discussion of Dr. GORRILL's paper:

Dr. EDWARD GILLESPIE referred, in connection with Case I, to a case he had reported at the Binghamton meeting in which a dementia præcox was associated with tabes.

Dr. J. L. ECKEL asked whether in Case II the sensations had been carefully tested. He thought that speech and writing and memory were so good in this case that it might possibly be a case of tabes, in spite of the fact that the knee-jerks were exaggerated—referring to some cases of this kind which he had seen.

Dr. GORRILL replied that the sensations had been repeatedly examined, and that no important changes had been found.

Dr. HELENE KUHLMANN spoke, in this connection, of a case of general paralysis which had come to autopsy, in which speech was very little affected, and writing was perfect to the end.

Dr. AUGUST HOCH called attention to the fact that in Case IV, the syphilis occurred before the attacks of manic-depressive insanity, and that in the early attacks the pupil reaction was slow, and the knee-jerks overactive. He referred to a case he had seen years ago—a patient who had recurrent attacks of manic-depressive insanity; even in the first attack this was associated with Argyll-Robertson pupils. The case was followed through six or eight years without there being in evidence any deterioration, and the man showed perfectly normal intervals. He also spoke of Hauptmann's study in which it was shown that sometimes wives of general paralytics may have merely pupil defects.

Dr. ECKEL spoke of a case he had seen at the Buffalo State Hospital who had manic-depressive insanity with lost knee-jerks and Argyll-Robertson pupils, positive Wassermann in the blood (spinal puncture not done). She was the wife of a tabetic.

Dr. G. G. ARMSTRONG and Dr. J. B. BETTS presented a paper entitled "**Cyclic Dementia Præcox**," published in full in the *STATE HOSPITAL BULLETIN*, Vol. VI, pp. 441-449.

Dr. AUGUST HOCH described fifteen cases of aphasia—quite a number of them from the Buffalo State Hospital—which had come to autopsy, and whose brains had been sent to the Institute. Abstracts of clinical records were read, and the lesions were demonstrated by means of lantern slides made of brain sections. The demonstration included a number of cases of lesions in the Broca region without aphasia, a case of central deafness with paraphasia, in which the auditory radiation was bilaterally interfered with; and a case of partial pure word deafness, in which there was a bilateral but slight lesion in the transverse temporal gyri.

Dr. ROBERT KING read a paper entitled, "**Temporary Manifestations of Paranoid Symptoms**," published in full in the *STATE HOSPITAL BULLETIN*, Vol. VI, pp. 450-480.

Discussion of Dr. KING's paper.

Dr. AUGUST HOCH pointed to the similarity of Case III with an alcoholic hallucinosis, and asked whether this could be excluded.

Dr. G. W. GORRILL said that this could be absolutely excluded and that the reaction was really dominated by manic features; whereas the hallucinations were not very prominent.

Dr. HOCH said that even pictures like typical alcoholic hallucinosis could occur without alcohol, and referred to a case at the Institute in which a woman had a definite alcoholic hallucinosis, and later a very similar condition in which alcohol could be definitely excluded.

Dr. ARTHUR W. HURD also spoke of cases with a recurrence of the hallucinosis without further use of alcohol. These recurrences were often of a less severe grade, and finally disappeared completely. He mentioned also a case of alcoholic hallucinosis who had quite recovered, but when he was on his way to the railroad station the hallucinations suddenly returned, so that he had to be taken back to the hospital at once.

Dr. PATTERSON also mentioned a similar case.

Dr. P. G. TADDIKEN said: "Exclusive of the unimproved, there were discharged from the St. Lawrence State Hospital during the past four years, 19 cases diagnosed paranoic condition. Of this number 1 was recovered; 12 improved, and 6 much improved. A more careful study of the case discharged as recovered shows conclusively that this patient had not recovered at the time of her leaving the hospital; so that during the past four years no recovery of a paranoic condition has

occurred. The relatives of most of the cases discharged as improved, or much improved, were communicated with, and from replies received during the past two weeks we ascertained that all in some way still show evidence of mental trouble.

In the study of 882 consecutive admissions made two years ago, we found but three cases in which it seemed to us that the diagnosis of paranoic condition could clearly be established. Our experience has been quite similar to that of Dr. King's. Paranoid ideas are found in many psychoses, but in all some other symptoms, such as manic-depressive features, or evidence of deterioration, are present, and this enables us to place the case in one of the other groups. It seems quite clear that typical paranoic conditions, such as we meet with in our hospital experience, do not recover."

Dr. GORDON PRIESTMAN reported the following case which he regarded as, possibly, a recovered paranoid condition: A woman whose left arm had been disabled by an accident. During treatment she had sexual relations with her physician; later, similar experiences with her employer. Some time later she developed delusions that the physician and her employer were defaming her character, and that they were trying to make a white slave of her and kill her daughter. There were also some ideas of reference but no hallucinations. She showed some depression, especially while freely relating her sexual experiences noted. She cleared up after four or five months, and is now at home on parole, apparently quite well.

Dr. ARTHUR W. HURD stated that cases of typical paranoia with slow development of persecutory ideas, and with a final megalomaniac stage as described by Krafft-Ebing, were probably few in number, but that they should still obtain recognition as belonging to a definite diagnostic group. He referred briefly to such a case—formerly in Buffalo, now at Gowanda—who had on three occasions obtained writs of habeas corpus but had never been ordered discharged by the court.

Dr. EDWARD GILLESPIE said that he had recently reviewed the Binghamton material for the past three years, and had found no recovered paranoid conditions.

Dr. S. G. PIERSON said that one case at Rochester had gone home, apparently recovered, but had to be returned to the hospital recently.

Dr. W. W. WRIGHT referred to a case of a paranoic state, who had for years had delusions and hallucinations, which, however, she was able to keep in the background remarkably well, and who recovered after a number of years. (The case is published in the Annual Report of the Institute, 1912-1913, pp. 33-41).

Dr. CHRISTOPHER FLETCHER read a paper entitled, "**A Consideration of the Prognosis of Dementia Præcox with Report of Cases Discharged Recovered.**"

Dr. FLETCHER mentioned the different opinions held regarding the question of recoverability in dementia præcox, and the fact that various standards as to what constituted a recovery evidently existed.

This, together with imperfect examination of cases on discharge, seemed to account to some extent for the divergent views on this question. In some cases it was difficult to say whether certain conditions were merely the expression of a constitutional peculiarity, or whether they should be looked upon as a residual of the psychosis.

He had reviewed the admissions for a period of ten years (1902-12) to the Buffalo State Hospital, and out of 440 cases classified as dementia præcox, only ten had been discharged as recovered. Of these ten cases, six had been re-admitted to a hospital for the insane, one died after discharge, and three appeared to be mentally well at the present time.

In reviewing the cases that relapsed, it was found that heredity and a shut-in type of personality occurred much more frequently than in the cases which have so far remained well.

In the cases which relapsed, the duration of the psychosis before admission and the period under treatment, both averaged much longer than in the cases still regarded as recovered.

The conclusion was reached that recovery was rare in dementia præcox, and that no one feature determined the outcome.

It appeared to the speaker that with an untainted family history, a good make-up, and an acute onset, the chances for recovery were better than in cases without this combination.

Discussion of Dr. FLETCHER's paper:

Dr. P. G. TADDIKEN: At the St. Lawrence State Hospital we discharged during the past four years, five cases of dementia præcox, or allied to dementia præcox, as recovered; four as much improved, and seven as improved. Of those discharged recovered, one case was dementia præcox, and four allied to dementia præcox. The dementia præcox case seemed correctly diagnosed, and at the time of leaving the hospital apparently had recovered. We have not heard from her since.

The following is a brief statement of her case:

A. S. Identification No. 33304. Admitted May 27, 1908. Father died of tuberculosis; was alcoholic. No other history of insanity obtainable. The patient was single; 32; temperate; Catholic; she had a limited common school education; having had difficulty in learning, she left school at 13; for a time she was a child's nurse and a servant, but owing to failing health was forced to quit. In 1906, she had both ovaries removed (within six weeks, two laparotomies were performed). After this she became quiet, seclusive, was not inclined to go out. One year before admission she heard voices saying "dirty things" and "funny things" to make her laugh. She conversed with them; later she began to hear men on the street make remarks which she could not understand; these were explained to her by a girl friend. Before admission she was destructive; had outbursts of screaming, assaulted her mother; said she would fix her. She imag-

ined people were against her. On admission she still retained her hallucinations, her stream of utterances was connected, but her writings showed incoherence and were pointless. Her orientation was good, she was dull and listless and without insight. During her stay at the hospital her condition was practically unchanged, her conduct was variable, her hallucinations continued. In November, 1909, she began to improve, and on April 10, 1910, she was paroled, and subsequently discharged recovered on October 10, 1911. We have not heard anything from her since leaving the hospital.

The cases diagnosed "allied to dementia præcox" were the following:

L. J. K., was only improved on leaving the hospital, but some months later a letter from her mother stated that she was entirely recovered. In two cases, A. C. and J. S., a more careful study of the records indicates that they belong to the affective psychoses rather than to the deterioration group. In the case of C. McV., the patient is at home doing some work, but is not considered so efficient as before the psychosis, and is irregular in his employment.

Another patient who was discharged on one occasion as recovered, and on a re-admission as much improved, and who at the present time is teaching school and able to retain this position, might indicate a recovery were it not for the fact that it is quite definitely known that the school board is allowing her to teach in order that she may obtain a pension, which will be due her after a few months more service.

Dr. R. M. CHAPMAN reported the following case:

Woman. Age 34. Make-up: reticent and peculiar. A forced marriage at 14 or 15, which was unhappy. She was deserted by her husband at 19 years. She had a strong dislike of her father for eight or nine years before admission. Near, or at the onset of her psychosis, she had an incestuous dream, and more fear of her father. Afterwards: Two years before admission she heard her mother's voice telling her (patient's) brother that her father was not her father, and that she was the daughter of a much more important person. Later she heard a young man's voice which said: "I'm going to get you." Ideas then developed; first, that she was engaged to this man; later, that she was married to him, and finally, that she became pregnant by him and had had an abortion. She became "out of touch," and was quite happy in these experiences. Such a case would not be expected to recover, but she has cleared up considerably and is now home on parole. She is free from hallucinations, but not necessarily recovered. The fact that a partial analysis was made, probably added to her chances of readjustment.

Dr. EDWARD GILLESPIE reported the following case:

C. S. Woman, single, 19 years old. Three weeks before admission she began talking in a silly manner about "fellows," first one, then another. Repeatedly she put up her hair and took it down; again,

went from one neighbor's house to another, talking ramblingly. She heard her father and brothers call her "bad girl." She took her father's revolver and shot a calf, which, she said, was laughing at her, and threatened to kill her family. She lost interest, and became untidy (wet and soiled). To the examining physicians she said she was pregnant. In the hospital she was at first mute, negativistic, showed muscular rigidity, silly laughter, hallucinations of hearing. She sat with her eyes closed, would not eat nor pass urine voluntarily. Then she became impulsive. Six weeks later she began to improve, the catatonic symptoms left, she would help herself a little, but was still indifferent and abstracted. The improvement, however, continued, and she gradually became more normal in her manner, took an interest in the work, her hallucinations disappeared after two and a half months, and eight and a half months after admission she was paroled, and was discharged, four months later, as recovered. Her correspondent wrote that she was working daily, and appeared to be in her normal condition.

Dr. W. W. WRIGHT referred to the importance of getting at the make-up of the cases (*e. g.*, the shut-in personality), especially for preventive and prognostic purposes. He gave an account of vocational assortment of employees by a professional and of placing them according to their make-up at their proper levels, and spoke of the fact that it was an important consideration in prevention of breakdowns to see that people did not live above their levels of adaptability.

Dr. HELENE KUHLMANN read a paper on the "**Father Complex**," published in full in the STATE HOSPITAL BULLETIN, Vol. VI, pp. 481-516.

Discussion of Dr. KUHLMANN's paper:

Dr. H. L. LEVIN said that he had been impressed with the frequency with which the Oedipus complex was found in neuroses and psychoses.

Dr. W. W. WRIGHT mentioned the value of even an incomplete analysis, and pointed out that, if this is combined with re-education and guidance for proper adaptation to life, a good deal can be done in the case of dispensary patients, according to his experience, and that certainly a knowledge of psychoanalytic principles was very important in treating both neuroses and psychoses. He did not think that the religious belief of the patient—that is to say, whether or not they are Roman Catholics—made any difference as to the likelihood of the patient's breakdown.

Dr. KUHLMANN called attention to the fact that these patients seem to have a special affinity for sexual impressions and elaborations in childhood, but thought that not all children should be protected. The re-education she thought would be important along altruistic lines. She agreed with Dr. Wright that re-education and partial analysis could very well be combined.

PROCEEDINGS OF THE INTER-HOSPITAL MEETING HELD AT THE CENTRAL ISLIP STATE HOSPITAL, DECEMBER 16-17, 1913.

Those present besides the entire staff of the Central Islip State Hospital were: Of Kings Park State Hospital, Drs. Bartram, Bentley, Blaisdell, Coffin, Craig, Durgin, Eaton, Feldstein, Furman, McGaffin, Rosanoff, Sandy, Sanford, Shuffleton, Steckel, Tietze; of Long Island State Hospital, Dr. Smith; of Manhattan State Hospital, Drs. Barnes, Barton, Boudreau, Leahy, Soper; of Hudson River State Hospital, Drs. De La Hoyde, King, Parsons; Porter, Raynor, Russell; of Middletown State Hospital, Drs. Moore and Woodman; of Mohansic State Hospital, Dr. Jones; of St. Lawrence State Hospital, Dr. Taddiken; of the Psychiatric Institute, Drs. Dunlap and Hoch.

Alcoholism and Manic-Depressive Insanity.

Dr. G. C. H. BURNS read a paper with the above title which is here given in abstract.

Among the many problems which confront us in the diagnosis of cases in our hospitals, not the least difficult is that of differentiating cases with an alcoholic history. A large number of these cases justly fall into one or another of the varied types of alcoholic psychosis. Certainly twice, perhaps thrice, this number have, however, an alcoholic history of sufficient extent to be considered in the diagnosis.

Whether we consider a disease with the viewpoint of prevention, diagnosis, treatment, or outcome, the fact that we know its etiology is of paramount importance; therefore, it is of value to know, in the case of any of the so-called symptom complexes, whether it can be produced by alcohol.

Dr. Meyer says that the etiological classification can be advocated only where the symptoms produced or existing are characteristic of the etiological type, and further states that toxic or exogenous causes may co-operate with endogenous defects.

According to Bonhoeffer it is known that excessive drinking may be the first symptom of a beginning psychosis; again, in other cases, alcohol gives a peculiar stamp to the psychotic state, as in periodic drinkers. But the etiology in these cases does not lie in the alcoholic intoxication but in the pathological mental constitution.

The frequency with which the history of alcohol occurs in manic depressive psychosis, and with which manic symptoms appear in the picture of a breakdown supposedly due to alcohol, seems, on the surface, to be more than coincidence, and some of these cases are so difficult of solution that they are placed in the allied groups.

From the admissions since 1910 which fall into the class of manic-depressive insanity and of acute alcoholic psychosis I have selected for this study nine cases. The cases are briefly as follows:

CASE I. H. Z. A man who, without former attack, had, after three years of excessive drinking, a psychosis lasting about two months which in its main features was typically manic. He had, however, also ideas that he had been mesmerized by a big fellow in a saloon, who made him act like a dummy; that spirits made him sing and whistle, and made him go through grimaces. (This was not seen under observation.) The attack was followed by a depression with inactivity, in which he said that enemies had persecuted him all his life. Recovery.

CASE II. H. B. A man who has had frequent attacks which were characterized by either elation or depression. The alcoholic history is not well known. After the loss of money he became downhearted, then excited, and commenced to drink. He states that he was more easily affected by alcohol. Whether the alcohol then colored the features in any way, we can not definitely tell, but the condition appears to have been simply manic. He certainly had former attacks which came on without alcohol, because several had developed while he was in the hospital.

CASE III. M. F. A woman, age 34, who had four former attacks, which are not sufficiently well described to draw any conclusions from.

The present attack followed excessive drinking, and when she arrived she showed tremor. She was throughout essentially talkative, rambling, flighty, elated, and irritable. But this condition was, a month after admission, interrupted by a state, lasting a few days, which was characterized by praying, again by a peculiar mixture of elation (with flight of ideas), and fear of being killed by the nurses, who, she claimed, cut her all over her body at night; and she also expressed the idea that she was still a virgin.

CASE IV. A woman, chronic alcoholic, who during several pregnancies had unconscious spells, later some when made angry, and recently one after drinking hard. She had (1) after a childbirth and drinking, a psychosis (not observed) with mutism and tube-feeding (one year duration). (2) Two attacks which are not sufficiently described (one said to have been a hallucinosis). (3) After hard drinking, a psychosis which lasted for six months, during which she spoke of the world having come to an end, of seeing spirits; and she spoke to dead people. (4) A short psychosis after drinking, with visions of heaven opening, angels singing, but a rather depressive excitement. (5) The last attack: after hard drinking and an unconscious spell, a psychosis of short duration, in which dead relatives appeared; she saw devils and a lion, was afraid she would be killed, people said she was bad, a drunkard. (6) But, in addition, she had a psychosis (observed) in which she appears to have been definitely manic, though this began with a brief confusion. It was, like the others, preceded by hard drinking. Once she had a period of hard drinking without psychosis.

CASE V. A man with a roving disposition and easily discouraged, had the following attacks: (1) Several nervous attacks, not clear whether after alcohol or not. (2) In 1904, after hard drinking, a short attack, as follows: After waking up from a state of intoxication, he thought "a dog had attacked him and had pulled his pants off." Then he was excited, violent, sometimes refused food, things were after him, people put up a job on him. (3) In 1908 he got discouraged over bad times. Then he began to drink heavily. He got scared, thought something was going to happen to him, but he also complained of loss of interest, lack of courage, and felt depressed. (4) After excessive drinking, apparently simple depression with reduction of activity. (5) After a quarrel he gave up his job. Then he drank heavily, and after five or six days he developed fear, and heard a woman talking, a bird in the room. There was evidently some clouding. He cleared up quickly but showed for a time a slight depression. (6) Two depressions without alcohol characterized by retardation and self-accusation.

CASE VI. A colored woman. Age 37. She had the following attacks:

(1.) When 16 she had an attack of excitement (not described) lasting three months. She did not drink. Since 20, she led an immoral life. (2.) 1904: After drinking more excessively, she was in the hospital for a year. Onset was sudden, with seeing strange things; everything seemed to be moving; she heard people call her, a man said "My dear Emma"; she heard people ask a lot of questions, heard the dead sister. She was boisterous, violent, destructive. Later she decorated herself, was impudent and trifling. (3.) 1906: After excessive drinking, and after having been queer for a year and a half, she developed a psychosis in which she was at first dull, somewhat confused, with ideas that her sister-in-law was talking to her about money she owed her. After a short time she was somewhat depressed, and slow for a month, then recovery. (4.) 1910: After excessive drinking she developed apparently an ordinary manic state.

CASE VII. A. H. A woman with one previous admission in 1901, characterized by marked auditory hallucinations and fear, and said to have been due to alcohol, this being admitted by the patient. She had been a drunkard and a vagrant for years. After an attempt to reform, with, as patient claims, abstinence for a year, she awoke suddenly at night and had "visions" of fire and babies, which made her fearful. She then became excited, overactive, and elated, feigned modesty, and wished to be called by another name. She showed a fairly typical manic picture, with a gradual recovery to normal.

CASE VIII. A woman of 38. She began to drink and be immoral five years after marriage, i. e., when she was 23. Some weeks before admission she was sent to Bellevue, where she was fearful, restless, had auditory hallucinations ("bastard and everything else"). Under observation she showed for a week a variable mood, but the

predominant emotion was uneasiness, with hallucinations, this passing into what appeared to be a simple manic state.

CASE IX. A woman of 49. No former attacks. Death of husband three months before admission; then heavy drinking; when under the influence she got noisy, called "fire, fire." Then ideas that God was calling her; she wanted to go to heaven, stood in the form of a cross.

Under observation she was elated, laughed but was also tearful; heard voices from the dead, God talked to her, accusing her of her wicked life, and admonishing her to be better; her husband wanted her to come to him; a man who did not like her husband might injure her with his tongue. This tapers off into an elation, with boastfulness.

It seems justifiable to draw the following conclusion from these cases:

1. We see that in the same patient alcohol seems to have produced at one time what appeared to be typical alcoholic psychoses, especially hallucinoses, at another time typical manic-depressive attacks. This seems to have been the case in patient No. V who had two attacks of hallucinosis following alcoholic excesses: one of these was characterized by fear with hallucinations (hearing a woman and a bird), and evidently at first some clouding of consciousness. The other was characterized by excitement and violence, and ideas that a dog pulled off his clothes, that things were after him, and that people had put up a job on him. Both attacks were brief. But this patient had also several attacks of characteristic manic-depressive depression. Two of these were like the hallucinoses, preceded by alcoholic excesses. In one of them there was associated with the depression fear that something was going to happen. Finally the same patient had two attacks of manic-depressive depression which were not preceded by alcoholic excesses.

A somewhat similar case is patient No. IV. This case had, after drinking, at one time a short manic attack; on two other occasions, hallucinatory attacks also of short duration. One of the latter was characterized by ideas that she was to be killed, that people accused her of being bad and a drunkard, that dead relatives appeared, and she had visions of devils and a lion; the other was a depressive excitement with visions of heaven opening. This patient also had two other psychoses which lasted longer, but which were not sufficiently observed.

Then patient No. VII deserves to be mentioned here, if the diagnosis of the first attack—which was not observed at the hospital—is correct. This would then be a case in which the patient had with an alcoholic etiology a hallucinosis, and without such an etiology a manic attack.

Finally we have a case who had a manic attack after alcoholic excesses, which, like some of the attacks of the patients already men-

tioned, did not seem to be colored by the alcohol. This is patient No. V. The manic picture was, a month after admission, somewhat changed for a few days, inasmuch as she began to pray, was afraid of the nurses, thought they were going to kill her, claimed they had cut her all over her body. It would be far fetched to attribute this to alcohol.

We also find that in patient No. II the alcohol did not color the attack. This case raises the question as to how often the alcoholic excesses are due to the beginning psychosis. In the patient just mentioned this was unquestionably the case, though in the other instances here cited this is probably excluded. This of course does not mean that we are not fully aware that excessive drinking probably develops only on a psychopathic basis.

2. We may find that alcohol produces a psychosis which begins like an alcoholic psychosis and ends as a manic attack. A case in point is patient No. II, whose psychosis commenced with fear and voices calling her "bastard and everything else," and terminated in a simple manic picture. Whereas here the two phases seem to be fairly well demarcated, and the whole psychosis was short, we have a less clear cut picture in patient No. VI who had a longer psychosis. The attack, which was preceded by alcoholic excesses, began suddenly with seeing strange things, hearing voices, people asked her questions, a man said, "Dear Emma." She became boisterous, violent, later trifling, impudent, and decorated herself. The same patient had, on another occasion, also after drinking, a simple manic attack, and again a short depression ushered in by a short period of confusion.

Considerable difficulty is encountered in interpreting the last case, patient No. IX. She began to drink heavily after her husband's death, then heard God calling her, she wanted to go to heaven, heard voices from the dead, thought her dead husband wanted her to come to him, God accused her of her wicked life. This tapered off into an elation with boastfulness. As a matter of experience, we know that manic cases may begin with a similar transitory clinical picture without alcohol playing any rôle. It is therefore not clear whether she belongs to this group.

3. It is questionable whether alcohol may color a clinical picture of a manic-depressive psychosis for a longer period of time. Possibly this is the case in patient No. I, who, after excessive drinking, had an, essentially, manic clinical picture, but with ideas that spirits made him sing and dance, and that a big fellow in the saloon had hypnotized him.

Dr. S. R. LEAHY said that in his experience manic attacks as a result of alcoholic excesses were not infrequent, and that then an alcoholic coloring was often seen, as was shown, both in some of Dr. Burns's observations, and in some of the cases which he was going to report briefly. He thought it would be quite interesting to study the make-up in these different cases, although this was often quite diffi-

cult. In comparing, on the one hand, the make-up and the reaction which the individual showed to alcohol, and, on the other hand, the type of psychosis, he said that he had been impressed with the fact that often cases with a more shut-in type of make-up did not get elated under the influence of alcohol, and that these cases also did not show manic symptoms in the attack; that, however, persons with a more hypomanic make-up, or a distinct tendency to this sort of reaction, under the influence of alcohol, were more apt to show manic pictures.

The cases which he wished to contribute to this study were, briefly, as follows:

CASE I. The patient was a man of 45, who for years was in the habit of going on sprees which lasted from several days to a week. These sprees increased in frequency so that they occurred as often as once in every four to six weeks. When he drank he became jovial, jolly, talkative and excitable. This excitability led several times to confinement in the workhouse. But latterly the excitement lasted longer than the spree. Thus in 1908 a definite manic attack followed a spree, and the same thing happened in 1913. The history also states that in 1902 he had a manic attack while drinking; and in 1906 he was sent to the workhouse for drinking, and while there developed a manic attack.

CASE II. A woman of 42, excessively alcoholic for some years. She is described as of a depressive make-up in the intervals of sprees. She had the following attacks: (1) When 37, before she drank heavily, she became illegitimately pregnant, and had an abortion performed. Then she developed a psychosis, with restlessness and apprehensiveness, and a paranoid trend. She was in Manhattan State Hospital for four years. (2) After excessive drinking she developed hallucinations, saw rats, snakes, which were under the bed, pulled at her. Under observation she was talkative and silly. (3) After a spree she was for six months abusive, nervous, restless. (4) After a spree she was found unconscious in bed; remained in a stupor during the following day. Then she is said to have pulled at the mattress, looked under it, mumbled to herself, did not recognize her sons. For some time she remained confused, forgetful. When sent to the hospital she was found to show a variable emotional tone, usually, however, of a cheerful character, and she showed marked flight of ideas. She was alert. She had poor memory for recent events, and was still markedly confused. Discharged after months only, but the sons state she was not normal. (5) The interval history is not known. The patient stated later that before the last attack she went on a spree; then began to hear voices, saw rats and snakes, thought she was going to be killed, was afraid. At Bellevue she is described as anxious, as having delusions and hallucinations. She was clear. Then, while still in Bellevue, she got elated, and under observation was essentially manic.

CASE III. The patient, woman of 50, had her first attack when 40.

After a spree lasting a week, she became talkative, irritable, and had ideas that her husband was unfaithful. She had no hallucinations. The attack lasted a week. Since then she has had similar attacks, of longer duration, once or twice a year, always following sprees; and she also drank large quantities of whiskey during the attacks, but she drank only moderately, and only beer, during the intervals. Whereas very antagonistic to her husband in the attacks, she is said to have gotten along well with him in the intervals. A year before admission she had an attack of a somewhat different nature; although she again had ideas against her husband, there was also considerable religious fervor, or she had crying spells, and once saw a woman in black. The present attack began again after drinking. She began quarreling with her husband, stayed away from the house, then went to the court in a very disorderly condition and brought a charge for non-support. Under observation she was elated, jocular, talkative but without decided flight of ideas. She expressed delusions of infidelity about the husband, called other patients Christ, or by the names of her relatives. She was not clouded, had no hallucinations.

CASE IV. A man of 23, who had been very alcoholic for two years. After drinking very hard for ten days, he turned against his brother, threatened to kill him, got excited, said he had prevented him from getting work. Once he said he saw black men on the wall, but he had no other hallucinations. Under observation he was essentially talkative, elated, boastful.

CASE V. Said to have been a spree drinker. He is described as lively, popular, but when intoxicated is abusive and profane. He is said to have had several attacks of "delirium tremens." After a spree he developed a typical manic attack, which was observed at the hospital.

CASE VI. Said to have been a periodic drinker. He is described as jovial but insincere and reckless. Two years before the present attack, after a spree, he got fearful, anxious, had delusions of persecution. Then he became expansive and had a grandiose trend. He recovered after a few days. After a prolonged period of abstinence he again began to drink, became first reckless and boisterous, then depressed and worried, and under observation he showed an atypical depression.

Dr. A. J. ROSANOFF said that, on receipt of the program of this conference, he went over the material at Kings Park, and had no difficulty in finding cases of manic-depressive insanity in which there was a history of drinking, but that it was much more difficult to find cases in which the causative relationship of manic-depressive attacks and intemperance could be definitely established. He came across only the following case in which he felt certain that such relationship existed:

A man of 34, who was admitted three times. Each of these attacks followed a spree lasting several days. In the intervals he drank very

little. When under the influence of alcohol he became rather unruly. The attacks were unmistakably manic-depressive in nature, but associated with hallucinations. He was excited, had a religious trend, but also showed fear and hallucinations. After ten days he became inactive and depressed. He recovered in a month. The different attacks were similar. He never had an attack without previous drinking, and never had a severe spree without an attack. Dr. R. added that a point of some interest was the fact that the patient's attacks (like some of those in Dr. Burns' series) had all been short, and that this seemed to him also to help in establishing the connection between the alcohol and the psychosis.

Dr. A. S. MOORE reported some cases in which typical manic attacks, or, in one instance, mixed manic attacks followed alcoholic excesses without, however, any features which denoted an alcoholic admixture.

Dr. C. L. RUSSELL said that in looking over the cases of Hudson River State Hospital he was impressed with the large number of cases of manic-depressive insanity in which alcoholic excesses were mentioned. He stated that he had been able to find over thirty such cases admitted during the last fiscal year.

He reported the case of a man who had for years been given to alcoholic excesses, but had never before had an attack of insanity. For two weeks before admission he drank very heavily. At the end of this time he was arrested, sent to jail, and then to Hudson River State Hospital. On admission he presented a typical manic attack without delusions or hallucinations. He recovered in five days, but was kept in the hospital for a month longer. Soon after discharge he resumed his drinking, and two days later had to be returned to the hospital. He presented the same clinical picture, which again passed over in a few days. This time he was kept in the hospital for five months, though he appeared perfectly well.

Dr. AUGUST HOCH described **Fifteen Cases of Aphasia** which had come to autopsy. Abstracts of clinical records were read, and the lesions were demonstrated by means of lantern slides made of brain sections.

Dr. G. W. MILLS then demonstrated "**Two Clinical Cases of Aphasia**": one of an essentially motor, the other of an essentially sensory type.

In the discussion of these demonstrations, Drs. Rosanoff, Smith, Mills, and Hoch took part.

Dr. W. N. BARNHARDT read the notes of the following case of "**Aphasia and Apraxia.**"

G. M. Age 39. Admitted to Central Islip State Hospital September, 29, 1906.

History of syphilis was not obtained of the patient. Wassermann reaction was never taken. But it is known that when the patient was

27 he developed a right hemiplegia and an aphasic disorder. Also, since that time he has had epileptiform convulsions, on account of which he was, four years before admission, for a time at Craig Colony. After the convulsions he is said to have sometimes wandered, and to have been irritable and assaultive. It was for this that he was taken to Bellevue.

At Bellevue he is said to have talked slowly, and to have been unable often to remember a word which he wished to say. His speech, moreover, is described as very defective, and it is said that he left out some words and mispronounced others.

He was at Central Islip for six years before his death, and his condition during that time, irrespective of the aphasic apraxic disorder, on which more detailed observations were made in 1908, was as follows :

The physical examination on admission showed a somewhat unsteady gait, a deviation of the tongue to the right, and an obliteration of the naso-labial folds especially of the right (the Bellevue commitment spoke of some weakness of the right face). There was also tremor of the tongue and fingers, otherwise no motor or sensory disorder. The knee-jerks were both exaggerated, and the plantar reflexes are said to have been normal.

So far as his mental condition is concerned, he was, on admission, somewhat somnolent, but could be aroused, and at times he was irritable. He knew the day, approximately the date, understood that he was in an asylum, answered correctly that he was married nine years, said he had a child nine years old. Also stated correctly that he was born in 1866, was 39 years old ; added that he was born at the time of the Civil War. But he is said not to have been able to remember the incidents of the day of admission, and thought he was in the hospital for a number of days instead of one day. He was also unable to do the simplest calculation, saying "I am unable to catch that."

His spontaneous speech was quite good. Thus, when told to tell his story, he said : "I was home. My brother said he would take me, and the first thing I knew, I was in the Harlem court, and two policemen took me to Bellevue Hospital ---- I don't know ---- one policeman in Bellevue Hospital put me in that place where they are crazy. I was there two days, I guess. They brought me here -- well -- I don't know -- my brother might want to get rid of me." But he had considerable difficulty in naming objects, could name only book ; for pencil he said "pick, picking, what you write with" ; for key, "I can't get the word -- what you open the door with" ; for bottle, he could not find the name.

He said himself that he could not write nor read ; wrote his name however, yet could not be made to write anything else ; he said he could not do it. Reading was not tested. The rest of the aphasia examination, which was done more systematically two years later, will be taken up separately.

For the rest of the time of his hospital residence, the patient

had occasional convulsions, perhaps eight or nine a year. They were general, and after them he was apt to be irritable and confused. He is at first described as good-natured, or as taking some interest in his environment when not in the condition following convulsions. He was also able to be up and about. In the later years, however, he became much weaker and duller, and unable to walk about without falling. For the last three months of his life he has had to be cared for entirely. He died on October 12, 1912.

The examinations for aphasia and apraxia were made in 1908. In the following all the available information concerning them is given. It should be added that at the time the patient's co-operation is said to have been quite good.

It was evident that the patient's spontaneous talk was limited but evidently not decidedly paraphasic. But his difficulty in word finding came out very markedly when he was asked to name objects. Among 28 tests, only two objects were correctly named. There was some paraphasia but particularly perseveration, a certain tendency to describe, and no evidence of not recognizing the objects.

Repeating of words was evidently very bad, because among seven words given in one series he was unable to repeat five, saying "I can't do it," or once he said "I got no teeth." When given his name to repeat, he spelled it (leaving out one letter); but he did repeat "cat."

As to his understanding of spoken speech, it should be stated, in the first place, that he picked out correctly 17 of 34 objects (this is taking all the tests together; a set of objects shown at one time was not more than six or seven objects), and on one occasion, when he failed to pick out the object, he said "I can not understand it, it is funny, I can not catch the word."

Then as to questions: He had understood some questions, in the early examinations evidently quite well, but even now, when asked to give his daughter's name, he said "Mary" (correct), but added incorrectly, "I have two daughters, I think they are both dead." (What is your father's name?) "One living and three dead." (How many brothers have you?) "Three, one dead" (four brothers living). (What are their names?) "One was Mary." (What is your name?) "Myers." (Correct.) (What is your wife's name?) He did not give it. (Who was George Washington?) He did not reply. From all these results it would appear that he had difficulty in understanding and a tendency to perseveration.

In four tests of word spelling he failed.

Reading was by no means abolished, as he read some nouns. Thus, when asked to read "The cat ate a rat," he read "A cat a - a - rat"; for "The cow jumped over the moon," he read "Cow - moon"; of the poem "Mary had a little lamb," he read "Mary - snow - ago"; and he read four out of ten letters.

For the test of stereognosis he was blindfolded, and with the right

hand could not name any of twelve objects; he frequently said such things as, "It's the same," or "I know what it is," but when various uses or names were suggested he never could get either the name or the use. With the left hand the result was similar. However, when a billiard ball was given, he pointed in the direction of the billiard table, and when a tooth brush was given and he was later asked whether it was for writing letters, he said, "No." (Is it for brushing your teeth?) He replied "You have got it, I believe" (this being the only occasion on which he picked out either the correct name or the correct use).

Then again on an examination in October, 1909, the following was noted: With either the left or the right hand in a bag, an object was put into the patient's hand, and he was asked to point to a duplicate in a set on the table (eight objects). He failed with the right hand entirely, and gave only one correct response with the left.

While it has above been shown that his understanding was sufficiently good to pick out 17 of 34 objects, and while evidently some questions were understood, he was unable to comply with such simple requests as "open your eyes," "touch your nose," "put your thumbs together," "put out your tongue," "touch your right eye," "unbutton your vest." Instead of opening his eyes, he opened his mouth; instead of touching his nose, he put his fingers on his temple or on the back of his head; instead of putting his thumbs together, he put his fingers together; instead of showing his tongue, he closed his eyes or showed his teeth; instead of touching his right eye, he put his fingers on his right shoulder. But when told to sit in the rocking chair, he first sat in the arm chair; then, when the request was again made, he complied correctly.

Equally difficult were acts required of him in which he had to show how imaginary objects were used. Thus, when asked how he would light a cigarette, he failed and said "I know it but I can't do it"; or when asked how to play the violin, he answered, "That is a different thing altogether, I can't do it"; and when the examiner did it, he said "That's it but I can't do it, I wish I could."

While so far the understanding defect may, in part at least, be responsible for his wrong acts, this explanation does not hold in what follows. He failed equally in his manipulation of objects. Thus, when given a shirt, a button, a threaded needle, and a thimble, and told to sew on the button, he picked out the scissors and tried to use them as a needle, and finally said "I can't do it." When an attempt was made to show him, he said, "Leave me alone, I can do it," but he did not succeed. When given a pencil, of which the point was broken off in his presence, and a knife, and told to sharpen the pencil, he made a sweeping cut across the pencil and seemed surprised at the result. When given a match and a cigarette, and told to light it, he seemed perplexed, said, "I don't know," and he could on no occasion be made to light a cigarette. However, when given a cue and told to

play pool, he shot a ball into the pocket correctly. Again, on another occasion, simply pushed the ball, and said "I know it. I played but I can't now." Sometimes he pushed a lawn-mower. Once he put on a pair of spectacles correctly (in a test in which he was asked to name them). In the same test series, when asked to name a necktie, he took hold of it, and put it over his mouth. Finally, imitation of movements was equally bad; he could not imitate clapping of hands, raising of arms, raising of foot, but made awkward motions; nor could he imitate putting palms, or back of hands, together.

Dr. C. B. DUNLAP gave the following account of the anatomical findings in this case:

The brain was somewhat small but symmetrical. In addition to diffuse puckering, atrophy and pitting of most of the convolutions in both hemispheres, there were well marked focalized softenings in the left supramarginal, angular and post parietal gyri, in the posterior two-thirds of the left first temporal convolution, including the transverse temporal gyri, and in the central operculum. The softenings did not completely destroy all of the cortex in these areas but parts of the convolutions had escaped. The transverse temporals, however, were almost completely disorganized as well as T₁. L. F.₃ while not softened was well preserved only in the anterior or orbital third, the posterior two-thirds being withered up, puckered and very atrophic. The left temporal tip and the left first frontal convolution were almost the only parts in the left hemisphere which were fairly smooth and fairly well preserved. In the right hemisphere the lower half of the central convolutions, the anterior half of the temporal lobe, T₁, and the mesial orbital convolutions were almost the only parts well preserved. The pia was grayish white, not greatly thickened, but tough. The smaller blood vessels were whitish and thready in places, and microscopically they were frequently occluded by a girdling intimal thickening. The large blood vessels were little thickened, except at the bifurcations where there was some atheroma, but both middle cerebral arteries were somewhat small. The cerebellum in the main was unaffected, except for a few patches of small atrophic folia. Microscopical examination showed, in the puckered convolutions, numerous small cortical wedges of softening usually free from gitter cells, often with much neuroglia reaction within and around them. Lymphoid cells were rather scanty in the pia, and were present in small numbers in some of the vessel sheaths.

Report on Pathological Material with Special Reference to the Significance of the Cellular Elements in the Meninges in Various Acute and Chronic Reactions.

Dr. DUNLAP presented pathological material from various cases received from the Central Islip State Hospital by the Institute within the last three years. The material included senile dementia with partial sensory aphasia, epilepsy with gross cerebral lesions, brain

tumor, and cases of syphilis and general paralysis. There were, besides the above mentioned groups, various cases of meningitis, and among these several were of non-syphilitic origin; this gave an opportunity to make an attempt to formulate, case by case, the differences shown by the exudates in the cases of non-syphilitic meningitis, and to try to discover in what ways these non-syphilitic forms of meningitis differed from the forms found in general paralysis and in cerebral syphilis. The main part of the communication was accordingly directed to this end.

The discussion centered about the reactions which the nervous tissues showed towards different micro-organisms whether of the spirochaete group or otherwise, also the development and the significance of these reactions. The question was taken up as to whether the nervous tissue in general had many ways of responding to irritants of this kind or other kinds, or whether its responses were rather limited and simple, and the conclusion was drawn that the capacity of the nervous tissues to react to foreign irritants of whatever kind was a rather limited capacity, and that certain similarities could be traced in many of the reactions; the reactions, of course, were not to be interpreted as the disease itself.

The view-point presented was entirely personal, without reference to the literature, and was illustrated by means of lantern slides, prepared from photographs so that the conditions in the meninges, on which the conclusions were based, were demonstrated. The cases shown in illustration of this topic were, one of staphylococcus infection; with enormous numbers of mononuclear leucocytes and polynuclear leucocytes in the meninges; another acute reaction, much the same in character, was shown by a case of pneumococcus meningitis. Several tubercular cases were then taken up which showed a reaction in the meninges, also marked by the presence of polynuclear leucocytes and lymphocytes in abundance, but besides these there were small mononuclear cells resembling lymphocytes, (which, whether correctly or not, will be called lymphoid cells), and all forms of transition from this small cell to large phagocytic cells were abundantly shown in the tubercular reactions. These large phagocytic (or "endothelioid") cells, which appeared to be derived from the lymphoid cells, were hardly to be seen in the acuter types of reaction produced by the micrococci. The plasma cell was also shown as an important component of the tubercular exudate, and the origin of this cell from the lymphoid cell above referred to was considered scarcely doubtful. A case of typhoid meningitis was shown in comparison with the tubercular case. The reaction in the pia of the typhoid case closely resembled that produced by the tubercle bacillus.

Next the reactions of the more slowly-growing spirochaete pallida were shown, with the lymphoid cell, and its supposed derivate, the plasma cell, in the foreground and the phagocyte decidedly in the background. Dr. Dunlap discussed his personal views as to what

these reactions might mean, and called attention to the presence of the lymphocyte or lymphoid cell in all of them; in the more chronic reaction types (tuberculosis-syphilis) this cell seemed to develop in one of two directions according to the needs of the situation, namely, towards a transformation into the phagocytic cell, or towards the plasma cell. In the syphilitic or metasyphilitic processes, with their relatively slowly progressive disorganization of nervous tissues, a less active set of cells seemed to be present than in the tubercular, the typhoid or the staphylococcus reactions, since, in the syphilitic diseases, phagocytic cells and granule or gutter cells were rarely to be found in any great number. The origin of the granule cells and phagocytic cells from those of lymphoid type was not considered less certain because of the fact that such cells were also unquestionably derived from other sources as well as from lymphoid cells.

In summing up it was stated that if an irritant in the cerebral tissues were an acutely active, rapidly growing, micro-organism like most of the micrococci, the response was rapid, the cells being mainly polynuclear and mononuclear cells, with addition of considerable fluid and fibrin. With organisms of slower growth like the tubercle bacilli the same mononuclear and polynuclear cells appeared but other cells (plasma cells, endothelioid cells) were present, derived from the mononuclear or lymphoid cells in part, and marked phagocytic phenomena were present. With a still slower organism, like the trypanosome of sleeping sickness or the spirochaete pallida of syphilis, the response was again the lymphoid cell with its derivatives the plasma cell and, in smaller numbers, the pigment carriers or granule cells.

With the sudden death of a considerable part of the brain, through nutritional disturbances unaccompanied by bacteria, the field is soon seen to be occupied by lymphoid cells; these soon show all grades of transition to the granule or gutter cells characteristic of cerebral softening, but plasma cells are absent.

The lymphocyte or lymphoid cell seemed, therefore, to play a most important rôle in the acute and more especially in the so-called chronic inflammatory processes, and the visible responses to various irritants seemed rather simple and rather uniform, since the first crop of cells thrown out as an exudate seemed capable of furnishing those needed later. This made it easy to understand how any irritant, a tumor for example, acting as a foreign body, might bring out large numbers of lymphoid cells; and how these cells, if needed later for such purposes, might take up the products of necrosis in the tumor, whether liquid or solid or in the form of so-called pigment; how an arteriosclerotic process, with much debris to be removed, often might show in the vessel sheaths, considerable numbers of lymphoid cells, and their offspring the pigment-containing cells, perhaps occasionally even a plasma cell. It was stated that plasma cells as such were not pathognomonic of anything in the cerebral cortex or meninges, but that their distribution and position together with the conditions under

which they arose were the pathognomonic signs of general paralysis, for example. It is expected that this paper may be published later in more complete form.

The Occurrence of Convulsions in Dementia Præcox, Manic-Depressive Insanity and the Allied Groups.

Dr. T. W. SIMON read the following paper on this subject:

The literature on dementia præcox makes mention of convulsions as some of the motor manifestations of the psychosis, occurring in a certain per cent of cases though by no means pathognomonic in value.

Kræpelin in his eighth edition (1913) states: "The convulsive attacks, already well described by Kahlbaum and Jensen, deserve special attention. They mostly take the form of vertigoes, fainting spells, or epileptiform seizures, which occur now singly, now in greater numbers in our patients. More rarely there are convulsions of isolated muscle groups (face, arm), tetany or apoplectiform attacks with rather prolonged palsy, and several such cases were noted by me from information obtained through anamnesis. Once I saw severe collapse with convulsions of left side of body and right side of face. Not so rarely a convulsion may be the first sign of the beginning disease. Thus I observed, *e. g.*, a student of exceptional intelligence, who suddenly passed into a state of deep coma, from which he emerged gradually (with the exception of slight pupillary inequality, facial phenomenon, and marked exaggeration of reflexes, there were no cerebral signs); yet this patient, when I examined him several weeks later, showed a well developed picture of dementia præcox which had existed for years. Hüfler also describes equivalents of catatonic attacks. By these he means transitory innervation disturbances in the arm, facial muscles and tongue, pain, vascular and pupillary disturbances, vomiting, sudden perspiration, with or without clouding of consciousness. All these cases are more common in the female sex. On tabulation they were found in 16 per cent of all cases and in 19 per cent of the longer observed Heidelberg patients. But besides these, in a considerable number of patients (6 per cent men, 3 per cent woman) convulsions and fainting spells had occurred in childhood. The connection of these with the mental disturbance must remain doubtful. Several patients had suffered from chorea. Urstein mentions convulsions in 8 per cent of men and 19 per cent of women. In one case, I saw the development of a severe catatonia, after the existence for many years of undoubted epileptic convulsions to which there were then added hysteriform seizures. In other cases also hysteriform convulsions and paralysis, aphonia, singultus, sudden stiffening and localized contractures, etc., were noted."

De Fursac, in his account of dementia præcox, speaks of hemiplegias and monoplegias, which are slight and of short duration, of "convulsive hysteriform or epileptiform seizures, to which are also

to be added apoplectiform attacks, so closely simulating true apoplexy as to be liable to be mistaken for it. The contractures observed are often the result of negativism."

Paton states: "In certain disorders, more particularly in dementia præcox, imbecility and idiocy, tonic and clonic convulsive movements are common. The disturbance is of psychomotor origin."

Other writers agree in general with these opinions.

In regard to manic and depressive psychoses, the following may be mentioned: Ziehen, under motor disturbances in depressive psychoses, states: "Hypochondriacal ataxias and hypochondriacal convulsive movements are occasionally noticed. The latter are always co-ordinated in the highest degree, and appear in many forms. Most often characteristic "shaking movements" of the arms and legs are noticed. In many cases their special form is determined by some existing paresthesias or other pathological sensations. Psychologically, the mode of origin of these movements is explained as follows: The pathological sensation gives rise to the hypochondriacal delusion 'I am getting a convulsion,' and this hypochondriacal delusion now releases the convulsions. The occurrence of the delusion, as well as the resultant convulsive movements, is aided by the fact that the existing paresthesias often give rise to defensive movements, which are interpreted by the patients as being prodromata of a beginning convulsion, and this delusional interpretation develops into an actual convulsive seizure."

Paton states, in his chapter on mania, that occasionally convulsions take place during the period of excitement, and that when these are noted they are extremely suggestive of the existence of epilepsy.

Kräpelin (edition of 1913), in his account of manic-depressive insanity, states: "Of particular importance is the fact that disturbances are often noted in our patients which we call hysterical; to these belong fainting and dizzy spells, as well as well-developed hysterical convulsive seizures, and further, choreiform shivering or shaking movements, psychogenic trembling, singultus, convulsive crying spells, night wanderings, and abasia. In spite of the very incomplete accounts of this symptom in the clinical material which was at our disposal, we still were able to find it in 13 to 14 per cent of the males, and in about 22 per cent of the females, especially in those cases of youthful years. In a few cases, convulsions of epileptic nature were also noted, a part of which came under my own observation."

It was thought to be of sufficient interest to review together the two great groups of constitutional psychoses and their allied conditions, with respect to the occurrence of what seemed to be real epileptiform convulsions, excluding thus as far as possible attacks of less severe nature. For this purpose, a study was made of the male cases summarized and diagnosed in staff meeting in the past four years, as well as any other cases known to be in the hospital at the present time and so diagnosed by the physicians observing them.

Certain obstacles appear against forming as satisfactory conclusions from the material at hand as one would like, and these must be accepted and borne in mind as modifying the results. In the first place, the convulsions have necessarily been observed and described, for the most part, solely by attendants, nurses, or relatives of the patient, and again many of the histories are lacking in the special information sought in regard to the patient's reaction, following convulsions, etc. Moreover, the cases are sometimes not adequately observed, and some have had to be excluded.

The total number of cases reviewed for this inquiry was 800. These 800 cases reviewed consisted of 500 cases of dementia præcox, and 180 cases of manic-depressive insanity, together with 60 cases in each of the allied groups. The cases in which convulsions were found were 16, but 11 had to be discarded, either because the diagnosis of epilepsy could not be excluded (an instance is given in Case I), or because the convulsions were not epileptiform (Cases II and III) or because an organic condition could not be excluded, or, finally, because it was impossible to arrive at anything like a definite diagnosis. This leaves, then, only five cases, or less than 1 per cent.

As to the conclusions, we should first mention the striking fact that in not one case of typical manic-depressive insanity did we find a case with epileptiform convulsions, while there were two cases (VII and VIII) of a chronic atypical manic-depressive reaction in which epileptiform convulsions were found.

As to dementia præcox we found (1) Case IV, an instance in which a typical dementia præcox reaction was associated with typical epileptiform convulsions; (2) Case V, a patient with a deteriorating psychosis, probably dementia præcox, in which late in the course, without plain evidence of organic disease, convulsions developed; (3) A case (VI) of congenital feeble-mindedness, who later developed something like a dementia præcox reaction, during which epileptiform convulsions occurred.

CASE I. Isadore S. Age 20. Russian Jew. Admitted, March, 1910. Heredity denied. Convulsions up to 6 years old; and "brain fever," three times. No history except that when 16 he was at a private hospital for the insane. There he is said to have been excited, shouting that he was the Saviour; later he became semi-stuporous, dull; again apprehensive, again rational. He went home improved after three months, and remained at home for three years. Then his mother died. He fretted and acted peculiarly, said his mother could raise the dead. He was again sent to the private institution, where he was excited; said he had seen his mother, that angels were about. Sometimes he would not answer and had to be tube-fed. After three months, though not better, he was again discharged.

Two years later, it was necessary to send him to Bellevue. There he heard his mother talking to him, and seemed afraid he would be thrown into the water.

He was six months in Central Islip. He is described as having many hypochondriacal complaints, spoke of his brain burning up, had some apprehension, and at times was tearful, yet he appeared dull. He was oriented. The right knee-jerk was diminished, left exaggerated; he limped in walking, and in later admission it is stated that his right leg was impaired in function; that he had unequal pupils, which however reacted. Later he smiled in a purposeless manner, was dull, stupid, could not converse in rational manner, and muttered constantly to himself.

He himself then stated that he had always had convulsions until a year before, that his feet turned up, all parts of his body turned up, that he once had broken his nose and that he had cut his lip in them. After discharge he worked some, but could not hold positions. Three years later, when patient was again admitted, the father spoke of fainting spells for three or four years.

He again developed "religious ideas." In Bellevue he said: "Devils, devils, very bad boy. God Almighty made me insane. My papa never sent me away. God of Russia, did I steal?"

In Central Islip, he chattered in a low tone, was rambling, apathetic, at times irritable, pounding chairs and table, noisy at night, expressing silly ideas, childish. At a recent examination he grinned or laughed, gave superficial answers, but answered much better when urged, giving a pretty good account. No delusions nor hallucinations were elicited. He said himself, he had recently had a fainting spell, which he described realistically.

CASE II. Leo D. Age 18. Admitted February, 1910. Heredity denied. He is said to have been normal, until two years before admission. Since then he has not done much work. He was more abnormal for a year, would stay up until 3 and 4 o'clock reading, was jealous of others, because they could enjoy themselves and he could not, did not want any one around him, thought his appearance had changed. At times when disappointed, he would have spells of stiffening out and staring.

At Bellevue, he is said to have been depressed, to have kept by himself. He imagined his appearance had changed, and that people remarked on it, said he felt depressed.

At Central Islip, he was clear, had no hallucinations, thought he had neurasthenia due to masturbation.

Later he worked but not well. He appreciated it was abnormal to lie around and do nothing, and attributed it to his masturbation. Discharged.

CASE III. John Th. Age 36. Admitted April, 1903. A maternal aunt was insane, a maternal cousin suicided, another was an imbecile. He was married; was a paper hanger, but it is not said how well he got along. Two and a half years before admission, he became abnormal, depressed, heard voices, saw angels, felt electricity.

On admission he is said to have been slow, depressed, spoke of

electric currents, of having had a vision of his father, of angels, of people threatening him.

Throughout his stay he is described as dull, stupid; again, as confused, incoherent. This state was frequently interrupted by sudden outbreaks in which he would assault others, or break something, or make a dive for a cuspidor and swallow the contents—once he said voices told him to do it. In 1911, he said he felt “kind of liberious,” that he had salt plates in his head and music in his bowels.

Recently when seen, he took no interest in his environment, muttered, gave very poor answers. Thus, in reply to questions, said he was 16 years old, that he was at the Manhattan Hospital, had been here for two years. When asked what he said, he answered: “He was there.” (Who?) “God Almighty.” Suddenly he struck out at some imaginary object. (What was it?) “A woman in white.” (Do you hear voices?) “My mother, a million voices.”

This man is said to have had one convulsion in 1906, three in 1907, and two in 1913. None of the convulsions are described, but Dr. Burns saw several states in which the patient fell to the ground, rolled about, made clonic movements, but got up when sternly told to do so.

CASE IV. William R. Age 33; single. Admitted November, 1911. The patient is said to have had a convulsion when 5. It is said he suddenly fell over backward, and was unconscious for three hours. He learned well enough at school, but was always peculiar, easily offended, unforgiving. Later he was quiet and kept to himself a good deal. When he left school, he worked in a trunk factory where his father was foreman. He stuck to this work and is said to have been efficient. But he was thought to be a little odd.

When he was 26, his father died; he became melancholy, thought it was not right that the man who was put in his father's place should be there, and that the boss was against him, but he continued to work for six years without further trouble, except that three years before admission he suddenly lost consciousness, was convulsed, frothed at the mouth.

A year before admission, the work became slack, and he sometimes could not be given work. He left the place, and then stopped working. He sat about reading all day, attracted attention by wanting to have a flag hung out of his window all the time, and got angry when the landlord objected; then he wanted to enlist in the army, but was rejected. He complained of stomach trouble, said he was sick, and gradually grew duller. He was finally sent to Bellevue.

At Bellevue he is said to have been incoherent, to have had loosely connected ideas of persecution, and to have had a convulsion.

He was at Central Islip for a year and three months. He was apathetic and had some delusions and hallucinations. He is described as scattered in his talk. Sometimes he got excited, talked of people injecting something into his head, said stuff was shot into him; and he showed oddities of conduct.

He was then transferred to Manhattan State Hospital in May, 1913. According to notes there, he was apathetic, and had peculiar ideas; *e. g.*, "They inject it in front here, and it goes into my intestines and spine, and alters the condition of my head. It feels like incision in gelatine." He said he was a great thinker, was created that way. "I bring the exactions out of it and could not be expected otherwise but my hair fell out." Again, he said something inside of him was attached to him. "Miss Amy Urton, she is explaining what you people are talking about, and it makes me laugh." When asked to explain, he said: "I can not tell you, there is no attachment; the operation of the treatment works that way." Sometimes he stood in the ward with his hand raised for ten or fifteen minutes, or prayed on his knees in the middle of the ward, walked about with peculiar stride, "to open the diaphragm." This patient had in Central Islip three convulsions, namely, in April, November and December, 1913. Since he has been in Manhattan State Hospital, *i. e.*, in about a year and a half, he has had about twenty convulsions, irregularly distributed; once he had nine in one day.

At a recent examination (October, 1914), he presented the following condition: The patient talks freely enough but indistinctly through his teeth, which he says is due to the influence exerted on him. He usually talks in a monotone and without animation, but sometimes laughs, which, he also says, is due to influence. Of what he says the following is quite representative: He spoke of injections which were made between his legs. He was made to show the place, and pointed to his perineum. These injections "go into the diaphragm and through whatever veins there are; they go down from the hip joint to the knees—the joints are loose." (Who does this?) "The professors and Miss Amy Urton." (Who is she?) "Mrs. William Xavier Raynor is the name I was to have, I was to wear, after I was a lying-in patient. I was right on the lying-in bed. The person brought me out of the illness; she has been treating me ever since. The other part of the ceremony was to be performed after I was well." (What other part?) "The wedding between Miss Amy Urton and Mr. William Ryan, who was to take the name of Mr. William Xavier Raynor." "I am living under the marriage condition with Mrs. Xavier Raynor, *née* Urton." "She is operating, and the alteration of the vertebræ is done at the same time." (Who are you?) "I am the ex-official president of the United States." Later: "There was a movement which was to proceed with the assistance of Godspeed." (What relation have you with God?) "I believe in Him; the scripture is there to read; a shock of my father's death had the effect of throwing me down quickly." "Then it all came back, the mental and the religion, it was revealed to me, it was like an egg-shell broken and the yolk came out."

CASE V. Charles G. Age 22. Admitted October, 1901.

When 17, he suddenly broke windows and chairs, laughed to him-

self, and refused to speak. At Bellevue he said he did not know why he did this, that he had had a spell, and then could not talk.

He was in Manhattan State Hospital five years, where he is described as foolish, muttering unintelligibly, at times screeching, but working in a dining room.

After this he is described as mute, but as working on the farm (good worker). Since 1906 he has had many typical epileptic convulsions, none mentioned before. (Condition started in 1896.) Recently when interviewed, he complied with simple commands but did not answer.

In this case we have a deteriorating psychosis, probably dementia præcox, in which, late in the course, typical epileptiform convulsions occurred.

CASE VI. Albert C. Age 20. Single. Admitted December, 1908. According to the Board of Alienists, the brother, who himself appeared to them to be of low mental development, stated that the patient's father was an alcoholic who had served many years in prison; that a brother is in jail charged with homicide, and that a maternal uncle is in an asylum in Italy. The brother also says that the patient never could learn anything, except the alphabet; that he had been unable to keep any position, and has become more dull since he landed. It is not known how long he has been in this country, however, or what his history has been, except that he was in Bellevue Pavilion the year before.

The commitment paper states that he muttered, whined, rocked to and fro, or paced the floor, repeating over and over that he felt sick, had stomach trouble. He also said, "I ain't done any work as long as I can remember."

At Central Islip he was described as obstinate, resistive; paid no attention to questions, or said, "I don't know"; often smiled, however, in a silly manner.

After that he sat about indifferently, smiling, not volunteering anything, had occasional crying spells, expectorated about, was insolent and careless.

At a recent examination he would not answer, just growled or struck at the interpreter, or paid no attention.

This man had, in October, 1908, a convulsion, after which, when seen, he appeared dazed, and had froth at the mouth.

This is the only record. It is also said that frequently, as he lies on the bed, he makes shuddering movements of his whole body, and that he has a marked tic on the face.

CASE VII. John R. Age 22. Admitted January, 1902. Three or four months before admission he became melancholy; later talked to himself and imagined everything was beautiful.

At Bellevue he was very stupid, would not talk, had no interest in his environment.

In Manhattan State Hospital (1902) he stared, did not answer ex-

cept a few questions in a low tone, appeared disinterested, dull, "demented," stared vacantly.

After a few weeks he got elated; then gradually got rational. In 1903 and 1904 he had many periods of excitement and irritability. In 1905 he also had hallucinations of hearing and ideas of hypnotic influence. These attacks of excitement continued with great frequency. In the abstract, the character is not described, or the interval. In 1910 he was transferred to Binghamton, where he is said to have presented typical manic attacks succeeded by depressions. In 1911 he was transferred to Central Islip, where the same is noted, except that the manic attacks are said to have been associated with irritability and surliness.

The convulsions began in Binghamton, January, 1911. Since then he has had thirteen convulsions; some, which are described, are said to have been typically epileptic. He died February, 1913, 31 years old, with "chronic nephritis and exhaustion."

CASE VIII. Frederick L. Age 24. Admitted February, 1907. The mother is in Kings Park. The patient is said to have been normal, good at school. A short time before admission he began to change, lost ambition, had crying spells, worried and had a convulsion (it is not known whether it was the first).

In Bellevue he walked about, would not answer, obeyed some commands, repeated some things others said.

On admission he showed aimless restlessness, with laughing and crying, and was very untidy. He heard God and angels talking, people followed him, people talked about him, at times he yelled, "take me home, Dora" (sister). Later he is said to have become disoriented, excited, and about two months after admission he lay on the floor cataleptic, inaccessible, resistive. These attacks recurred.

Four years later he began to show manic traits, was elated, distractible, flighty.

A year later (1912) he was depressed, tearful. These periods continued, the manic being described as elation with flight, mischievousness, overactivity; the depressions as characterized by dulness without depression.

This man, in addition to the cataleptic spells, had in May, 1912, a convulsion followed by some stupor.

Discussion of Dr. SIMON's paper:

Dr. A. E. ULLMAN said that he had looked up the records of 232 female cases of dementia præcox, and 135 allied to dementia præcox, in other words, 367 cases. Among these, ten cases had shown some convulsive manifestations. He also looked up 340 cases of manic-depressive insanity, and found only five cases had had convulsive manifestations. He added that in most cases in which a history of convulsions was obtained at the time of admission, subsequent observation during the patient's stay at the hospital failed to substantiate the statements. He finally reported a case which was diagnosed at

first manic-depressive insanity, but in which the further courses, in which, among other symptoms, convulsions occurred, made it probable that the case was one of cerebral syphilis.

Dr. S. R. LEAHY spoke of certain difficulties associated with the problem in hand, especially of the difficulty experienced in differentiating epileptic psychoses from dementia præcox psychoses, and mentioned the existence of manic and præcox-like reactions in otherwise typical epileptics. He warned against taking statements regarding convulsions observed only by the family or untrained attendants. He also pointed to the possibility of organic conditions, as syphilis, arteriosclerosis; spoke of the various kinds of attacks which occur and which are not epileptiform, and he thought if all these conditions were ruled out it would be hard to find epileptic convulsions in either dementia præcox or manic-depressive insanity.

Dr. R. C. WOODMAN: I can say that I can find an epileptic patient who has developed a psychosis that symptomatically appears independent of his epilepsy. I can find a patient with epilepsy added to an established dementia præcox: She was admitted at 27, and six years later began to have epileptic fits, and has continued to have them during the twenty-one years she has remained in the hospital. I have also been able to find two long standing cases of dementia præcox that became arteriosclerotic in old age and then began to have convulsions. I can find cases of dementia præcox that are said to have had hysterical convulsions before they came to the hospital, and cases that are said to have had convulsions since childhood, but these are the only kinds of convulsions found on looking over the records. Occasionally, nurses or friends describe as convulsions, acts which are the expression of the patient's ideas. A so-called convulsion of this kind, the key to which is at hand, occurred on our wards a few weeks ago. This patient had one manic attack followed by a depression, from which he has not recovered. Since then, however, the depression has become less, and he has told what was in his mind during this attack. He represented to himself the powers of darkness as a colored man, and enacted a struggle between himself and the personified adversary, to see whether his soul should go to the infernal regions.

Dr. A. J. ROSANOFF asked Dr. Leahy if at Ward's Island he had failed to find cases which would convince him that convulsions occur in dementia præcox.

Dr. S. R. LEAHY said he had not made a special study, but he was sure he had never seen the combination except in one case at Kings Park which showed something like a convulsion—a woman who fell in the dining-room one night in what was called a convulsion, and when he saw her she was straightened out rigidly. In explanation she said the nurse had given her a glass of milk which contained poison.

Dr. A. J. ROSANOFF reported the following case for Dr. C. S. PARKER:

A man of 29; single. (Identification No. 5075). Admitted November, 1910.

Family History. One brother died of "meningitis"; another brother was intemperate, and was killed in an accident while in an intoxicated condition; a third brother was insane.

Personal History. The patient was very backward in school, peculiar and seclusive. The mother always said he was "feeble-minded."

His psychosis began gradually, about four months before admission. The patient grew dull, would lounge about the house all day long, doing nothing, or he would sit by the window staring into the street; later he developed ideas of persecution, became apprehensive and agitated, said that some Italians with whom he had been working were going to shoot him, that he saw them outside the house; he complained, also, that strangers on the street passed remarks about his bad eyes.

On admission: The patient expressed a fear of being killed, said some Italians were after him, also complained that his relatives had no use for him, and that people on the street make remarks about him and looked at him in a peculiar way. For the first few days he sat about the ward with his eyes closed; when asked why he kept his eyes closed he said he had a mad look in them. Later he grew noisy, inaccessible, began to make assaults on other patients without provocation. But eventually his excitement subsided, and towards August, 1912, he showed improvement so that he was able to do a little ward work; but when not employed he remained dull, without interest in his surroundings, sitting by himself. At the request of his relatives he was paroled in their custody, but had to be returned to the hospital at the end of six weeks. From that time he remained dull, uncommunicative, at times assuming a peculiar attitude, becoming rigid and remaining so for an hour or more. On September 26, 1913, he again became suddenly greatly excited, pulled the pictures down from the walls, pulled down the fire hose, tried to take off the nozzle, turned on the water. Later, while on the way to the dining-room he tried to escape, saying he was going to Massachusetts, where his brother wanted him to put up some houses. He talked incoherently about the ward being full of typhoid fever, and of labor unions, said everything belonged to him.

On December 9 and 10, 1913, he was noticed having occasional spasmodic jerks or starts of his limbs or body, but no convulsions.

At five o'clock in the morning of December 11, he fell out of his bed. The attendant went to him immediately, and found him unconscious and in an epileptiform convulsion. This lasted about three minutes, after which the patient continued to sleep. At ten o'clock he had another seizure, somewhat milder than the first, which was witnessed by the physician, and which is described as follows: Sudden generalized tonic spasm, head turned to the right, body somewhat twisted also to

the right, face livid and cyanosed, arrest of respiratory movements from fixation of the chest; pupils dilated and reacting sluggishly to light, limbs rigid, fingers tightly clenched; gradual relaxation with jerky movements. The seizure lasted about three minutes; no soiling nor wetting. Patient came to quickly, obeyed simple commands, told his name, but could not be made to answer more complex questions.

Dr. ROSANOFF added: "In this case, which Dr. Parker ask me to report for him, the diagnosis of dementia præcox has not been questioned; one of the seizures, moreover, was directly observed by Dr. Parker, and its epileptiform character is also not to be questioned. Of course, were this the only well observed case, there would still be a doubt. But the situation is very different. On receiving the program of this conference, I asked the members of our staff to go over their services and report any cases of dementia præcox in which epileptiform convulsions have been observed. I can not say that the search was thorough, yet there was no difficulty in finding such cases on almost all our chronic services. On the other hand, neither I nor any other members of our staff have come across a single case of manic-depressive insanity in which epileptiform convulsions have been observed."

Dr. W. N. BARNHARDT expressed the opinion that some convulsions found in dementia præcox may be uremic, and stated that in the cases he had observed, and in which he had studied the autopsy reports, he had always found a particular cause for the convulsions.

Dr. JOSEPH SMITH pointed to the difficulty which one may encounter in differentiating dementia præcox from epilepsy. He thought that the association test might be of importance in this connection. He also spoke of the difficulty in differentiating epileptic and hysterical convulsions.

Dr. R. G. EATON reported the following case:

F. V. Age 22. Admitted to Kings Park November 14, 1895. The history is imperfect. No information as to how and when his trouble began could be obtained, except for the statement that the onset was gradual, and that he was intemperate. A history of epileptic convulsions was denied.

At Bellevue he is said to have appeared demented, answered irrelevantly, and stated that some one had tried to poison him, the cook had put opium into his food. He admitted having heard voices.

For the first thirteen years he had no convulsions. During this time he is repeatedly described as rambling in his talk, or as muttering and talking to himself, again laughing, sometimes going about restlessly, kissing various objects, suddenly jumping up and walking about briskly, making peculiar movements, not infrequently making wholly unprovoked assaults on others (on one such occasion he said he did it for fun); again, he is described as threatening. At other times he is said to have sat about apathetically. On one occasion

the notes state that he is fully oriented but contradictory in his answers.

On May 18, 1908, he had three convulsions. After this they continued about once in three to six months. It is stated that the convulsions usually come on during the night in bed; that such an attack is usually followed by two or three convulsions on the succeeding day, and that he is then confused for a day or so. In the fits he froths at the mouth, passes his urine, and has general convulsive movements. Since the beginning of the convulsions his state is described as follows:

May, 1909. He is inclined to be seclusive by keeping in one corner of the room, and, while there, often takes loud fits of laughter and will give the reason for doing so. He is clean and fairly tidy.

August 25, 1910. The patient states that he feels stopped up, that he has trouble trying to think, and that his memory is poor. He is oriented for place and persons, not for time. He admits auditory hallucinations, says they trouble him at night.

July 24, 1911. The patient is abusive, irritable, and dangerous; assaulted another patient without provocation (the only occasion mentioned since the fits began).

July 25, 1912. He talks to himself; makes peculiar brushing movements, and slaps his thigh.

March, 1913. He talks loudly at times, and gesticulates, rapidly rubbing his hands together, laughing in a silly way.

In general, it is said that he is more agreeable at times, at other times irritable and surly.

Dr. D. D. DURGIN reported the following three cases: He stated that he had reviewed the four hundred cases which he was daily associated with, and that he had found only these three cases in which convulsions occurred in constitutional mental disorders other than epilepsy.

CASE I. M. W. She was admitted in 1888, at the age of 30. No anamnesis is available.

At first she said that fairies were troubling her; that fortune-tellers had chosen a man for her. She was incoherent, restless, noisy. She gradually quieted down, and appeared considerably deteriorated. No convulsions were observed until twenty-three years later, in 1911, when she had a fit during the night. On May 12, 1913, a piece of bread was lodged in her rima glottidis. This was removed, but on account of her appearance she was put to bed. Two hours later she had a convulsion. The eyes were first fixed, then they rolled about slowly; the jaw, at first set, began to make grinding movements; she foamed at the mouth, muscular twitchings appeared. She was cyanosed.

After a few minutes she passed into a deep sleep. Physical examination showed no noticeable arteriosclerosis; the urine was negative, the reflexes normal. There have been no convulsions since.

CASE II. C. B. The available anamnesis is imperfect, but it is stated that the patient had an attack of some mental disorder when 32.

When 36 she had an attack lasting six months. She was at the Long Island State Hospital. She is described as excited; said Christ told her to preach, the devil told her to wait; voices urged her to kill herself and her children. She is said to have recovered.

When 38 she was again committed, and then was for six years in various hospitals without improvement, excitable, irritable, with spells of incoherence; sometimes she seemed to show a flight of ideas and talkativeness, at times also elation. She had ideas of strange influences, X-rays, blackmailing, etc.

Eight years ago she was sent to Kings Park. Since then she has been irritable, excitable, incoherent, voluble, saying such things as "such a liar, taking five or six highballs, nothing but loafers, why don't you have them arrested? He has been in jail twenty-one years." Recently she gave the year as 3000, said she had been in the hospital for forty nights.

In February, 1911, she had her first convulsion; another in January, 1912, and during the rest of 1912 she had several others. They are described as severe convulsions. There are no neurological findings, and the urine is negative.

CASE III. M. C. A Bohemian woman whose age now is 43. Admitted to Blackwell's Island when 22.

The history is meager. It is stated, however, that the psychosis came on after childbirth, five months before admission. Epileptic convulsions are specifically denied. She is described, at first, as stupid, dull, and subject to irregular episodes of excitement, muttering to herself, at times profane and obscene; generally loquacious and incoherent. She said, for example: "I was crazy about a little book, a bad little book, about Washington's mother. I took it from my little head. She had two little children. I heard she was a lady. My goodness! who could be down on that little boy?"

She was continuously in the hospital, and in 1902 is described as troublesome and noisy, with occasional spells of impulsive breaking of windows, or sudden fits of temper, and assaulting without provocation. This excitement is said to have continued, but she gradually quieted down to a state of inactivity and indifference, mumbling and not paying much attention to questions.

In the present year, *i. e.*, in the twenty-first year of her illness, she began to have convulsions. In January, 1914, she was observed by the night nurse as having a peculiar spell of embarrassed breathing, and in February a typical epileptiform convulsion was observed. She fell to the floor unconscious, had clonic spasms, froth at the mouth; the face was cyanosed. It was followed by deep sleep. She was more dull than usually next morning. Physical examination revealed no neurological signs; the urine was negative.

Dr. NELL W. BARTRAM reported the following case :

The patient was admitted to Long Island State Hospital in April, 1897. She was 35 years of age on admission, and the psychosis had lasted for four years. She had ideas that she had plenty of money, and that she wanted to build churches, a canal, and large factories. She gave away clothing, furniture, and money, went on the street in her bare feet, and removed her clothing, begged money from people passing by, and destroyed flowers, plants, etc., in the garden.

In the hospital she was noisy and resistive, talked to herself, and said that voices made her excited and quarrelsome. She picked at her hands and face in order to "let the fire out" of her body. She was deteriorated, but did some work in the laundry.

In 1903 she was noted as having attacks of syncope, and, in the latter part of 1910 and the beginning of 1911, typical epileptiform convulsions were described. These were of both petit and grand-mal type. At times she would simply be confused for a few seconds ; then again would fall to the floor unconscious. There was no aura, and no sleepy or stuporous condition followed the attack. She would recover almost immediately and continue her work.

She has had no convulsions for the past two and a half years, works on the ward, and shows marked deterioration. She has ideas that machines inject oil into her body, and that a white powder flies into her mouth and comes out through her skin. At times she is violent and assaultive.

Dr. W. A. CONLON read a paper entitled, "**Lumbar Puncture Findings in Epilepsy.**" No abstract available.

Dr. DAVID CORCORAN reported the following case: "**A Case Showing Symptoms of Central Neuritis, with Recovery.**"

The case to be reviewed is one of manic-depressive psychosis, showing a central neuritis picture, after which she recovered and later suffered from another manic attack, showing no organic features.

A Norwegian woman, about 42 years of age, with the following heredity: One maternal aunt insane. She was confined in a hospital, but eventually recovered and had no other attacks. The nature of her psychosis could not be ascertained.

The patient developed normally. She was bright and progressive in her school work. She was of a cheerful disposition with normal social instincts. When about 18 years of age, while away from home at college, she had a depression lasting a few weeks. About a year later, she again became depressed and was under the care of a physician for several months. She described herself as being nervous and melancholy. After she recovered, she obtained employment as governess. While working in this capacity, sexual irregularities occurred with the young man with whom she had been keeping company. At the age of 31, she lost flesh, became depressed, and, according to her own description, was run down from overwork as a

school teacher. She was obliged to give up her employment for a period of six months, during which time she complained of feeling unduly tired and lacked ambition. She returned to her position very much improved and got along successfully for two years, when she met with an accident by falling in such a way as to injure her back. The nature of this injury is in doubt, and it is possible that it was of very little significance. Shortly afterwards, she suffered from pain in the back, the right hip and right leg, extending to the foot. From the description given of this illness, one would be inclined to consider it sciatica with accompanying lumbago. She recovered from this condition, but two years later she again lost ambition. She had difficulty in performing her duties, and had to be urged to keep her position. For a period of four years she did not get along well. She realized that she was not giving so good services as she formerly gave. She worried because she was unable to take sufficient interest in her classes, and finally resigned.

After remaining at home for one year, she considered herself in perfect health. She then came to this country. On her arrival here, she immediately suffered from severe headaches. She became restless, uneasy, and lost complete control of herself. She was taken to the Scandinavian Home, and from there to Bellevue Hospital. While at Bellevue Hospital, she was distractible and flighty. There was pressure of activity and some depression.

On her admission to this hospital, there was still evidence of distractibility, flighty tendencies, and at times a suggestion of mild elation. She was completely disoriented, and was confused to such an extent that a complete examination could not be done. A week later, she was very restless; face was flushed; slight temperature, and constant muttering. A physical examination showed a dry-coated tongue; a few rales over the left lung thought to be caused by a dry pleurisy. There was some cough, but no expectoration. Heart action was rapid. No direct replies could be obtained from her. Her urine showed the presence of albumen, but no casts. Two days later both albumen and casts were found. She was tube-fed. About this time, she began to show peculiar jerky movements of the upper and lower extremities, especially of the right leg. Eyes were closed. Pupils reacted well to light. There was some muscular tenderness, and a slight rigidity which could be overcome. She suffered from diarrhea, and lost control of the rectum and bladder. The spinal fluid showed a slight lymphocytosis. A blood culture was negative. White blood count 23,000. The urine at this time showed a sp. gr. 1030. No albumen; no casts. For three weeks she continued to run a temperature, often reaching as high as 103. Several sputum examinations were negative for tubercle bacillus. Tube-feeding was necessary. Fibrillary twichings, jerky jactatory movements, and a muttering delirium were features of this period. A few days later, she began to reply to questions. She repeated the word "pain"

three or four times, and stated that she was sick all over. On the day she made this remark, the right lower extremity was frequently thrown, in a convulsive manner, over the edge of the bed. Fine, generalized muscular twitchings were observed. When an attempt was made to place the right leg comfortably on the bed, she would forcibly extend it, holding it in that position for a few moments, when it would pass through a series of jerky movements. About this time, improvement began, and in seven weeks after her admission to the hospital, she was able to talk in a confused manner. She tossed about the bed, and would occasionally laugh. At other times she sang, and seemed elated. About eight weeks after her admission to the hospital, she began to take small portions of milk voluntarily. Two months after admission, she was able to sit up in bed. She seemed fairly bright and was improving rapidly. During the third month, she began to show some insight, stating that she remembered leaving her position and going to the Scandinavian Home, but she could not remember anything after that for a period of about two months, when she first realized that she was in a hospital.

A physical examination during her convalescence, showed a scar over the left mastoid—the result of an operation in childhood. Inquiries as to the possibility of a specific infection was negative. It was impossible to get a history of an eruption, and there were no scars of a significant nature. She was also again questioned as to the pains in her extremities previous to coming to this country, and she referred to them as attacks of rheumatism. At this time her pupils were of moderate size, regular, equal, and reacted promptly to light and accommodation. She had some fine tremors of the tongue, lips, eyelids, and extended fingers, which were more noticeable when under slight nervous tension. She had good control of her organic reflexes. Elbow and wrist-jerks normal. Knee-jerks a little exaggerated—the left being more active than the right. Achilles reflexes both present and within normal limits. Superficial reflexes approximately normal. No Babinski. Station was good. No Romberg. She had some difficulty in walking a straight line. There was evidently inability to elevate the right foot. She was unable to flex the foot on the lower leg to the same extent as she did the left. Her spine deviated a little to the left. Speech and writing normal. Response to pin pricks, pressure, heat and cold seemed to be in normal limits, except for some difficulty in determining the points of contact on the outer surface of the right leg, so that a slight sensory disturbance and right foot drop were the only organic residuals.

The patient was discharged to be deported after a hospital residence of about four months. After she returned to Europe, she was well observed by her sister and a physician, who sent careful reports. Her physician, after examination, reported her to be in good health, and he also referred to her frequent nervous complaints previous to her coming to this country. Eight weeks after her return to Europe, a

Wassermann of the blood serum was reported negative. About four months later, her physician reported her as complaining of nervousness, general weakness, especially of odd weakness in the head. He did not find anything of neurological importance. Fourteen months after she left this hospital, another Wassermann was done and also reported negative.

In January, 1913, the patient again came to America, landing in Canada. As at the time of her previous landing, she almost at once became worried, confused, and unable to employ herself. She immediately left Canada for New York, and within a few days was sent to Kings County Hospital in a state of mutism. She was transferred to Central Islip in a confused state, and about a week later she began to talk. She described a period of amnesia, lasting between two and three weeks. When she realized where she was, she was still unable to recognize people with whom she was formerly well acquainted. She showed considerable apprehension. She misinterpreted conversations, and had hallucinations of hearing. She was so suspicious of those about her, that she constantly avoided everybody. She stated she heard people saying "put her out." She frequently asked for protection. She was reported confused and tremulous. She had tremors of the tongue, lips, eyelids, facial muscles, and fingers. There was some swaying in the Romberg position. Pupils reacted promptly and with good excursion. They were equal, regular in outline and of normal size. Speech was unimpaired. Deep reflexes exaggerated. The spinal fluid did not show a cellular increase. The Wassermann reaction was negative for both spinal fluid and blood serum.

She was discharged April 30, 1913, for deportation. She has been kept under observation by her physician since her return to Europe, and the last communication received, September, 1914, reported her as being in good health, both mentally and physically.

In establishing the diagnosis in this case, attention is called to four attacks of depression, previous to her first hospital admission. Each of these attacks was of short duration, but some of them were severe enough to necessitate a physician's care, and the giving up of her position. The amnesic periods as they occurred in this case—the first coincident with a fever, the second in the absence of a fever or other cause—are not sufficient in themselves to warrant a classification of infective-exhaustive psychosis. An organic condition of a specific basis is excluded by the numerous negative Wassermann reactions, and the absence of definite physical signs characteristic of that condition. So that, when we review the case in its entirety, we are impressed by the manic-depressive features in each of her attacks; but this is not sufficient to account for the unusual complex presented during her first hospital residence.

In 1901, Dr. Adolf Meyer, who first described central neuritis, defined it as a partially systemic parenchymatous degeneration,

principally of the central nervous system, and regarded it as a terminal disorder, occurring in various psychoses. The clinical picture which our patient presented during the first admission, so closely resembles that of central neuritis that the two are identical. Therefore, while central neuritis usually represents a terminal state, it would seem that there are isolated instances, like the present case, in which the same disorder goes on to recovery.

Dr. R. G. WEARNE read a paper prepared by Dr. MILLS and himself, entitled "**On Certain Cases of Exhaustion with Nephritis and Acetonuria found in the Insane, and their Treatment.**"

This paper will be published in full in a later issue of the BULLETIN.

MINUTES OF QUARTERLY CONFERENCE

SEPTEMBER 17, 1914.

Minutes of the conference of State hospital superintendents and representatives with the State Hospital Commission, held at the Capitol in Albany, September 17, 1914.

Present—

Commissioners MORGAN and MAY.

Dr. AUGUST HOCH, Director of the Psychiatric Institute.

Dr. WALTER G. RYON, Medical Inspector, State Hospital Commission.

Dr. MICHAEL OSNATO, Medical Deputy in Charge, Bureau of Deportation.

Utica State Hospital, HAROLD L. PALMER, M. D., Medical Superintendent.

Willard State Hospital, ROBERT M. ELLIOTT, M. D., Medical Superintendent.

Hudson River State Hospital, CHARLES W. PILGRIM, M. D., Medical Superintendent.

Middletown State Homeopathic Hospital, MAURICE C. ASHLEY, M. D., Medical Superintendent.

Buffalo State Hospital, ARTHUR W. HURD, M. D., Medical Superintendent.

Binghamton State Hospital, CHARLES G. WAGNER, M. D., Medical Superintendent.

St. Lawrence State Hospital, RICHARD H. HUTCHINGS, M. D., Medical Superintendent.

Rochester State Hospital, EUGENE H. HOWARD, M. D., Medical Superintendent.

Gowanda State Homeopathic Hospital, CLARENCE A. POTTER, M. D., Medical Superintendent.

Mohansic State Hospital, ISHAM G. HARRIS, M. D., Medical Superintendent.

Kings Park State Hospital, WM. AUSTIN MACY, M. D., Medical Superintendent.

Long Island State Hospital, ELBERT M. SOMERS, M. D., Medical Superintendent.

Manhattan State Hospital, WILLIAM MABON, M. D., Medical Superintendent.

Central Islip State Hospital, G. A. SMITH, M. D., Medical Superintendent.

MERRITT J. CORBETT, President Board of Managers, Binghamton State Hospital.

Mrs. ANNIE DEVEREUX MILLS, Manager, Binghamton State Hospital.
 ALBERT E. KLEINERT, Manager, Kings Park State Hospital.
 ALEXANDER MCKINNY, Manager, Kings Park State Hospital.
 MICHAEL F. MCGOLDRICK, Manager, Long Island State Hospital.
 CHRISTOPHER J. PATTERSON, M. D., Physician in Charge, Marshall Sanitarium.
 WILLIAM D. GRANGER, M. D., Physician in Charge, Vernon House.
 Hon. STANLEY J. QUINN, Executive Auditor.
 ELMER S. ELWOOD, Assistant Secretary State Charities Aid.
 Dr. CHARLES BERNSTEIN, Superintendent of the Rome State Custodial Asylum, Rome, N. Y.
 Hon. JOHN A. DELANEY, Commissioner of Efficiency and Economy.
 JOHN W. ROOT, Examiner State Civil Service Commission.
 C. J. WEISZ, Deputy Fiscal Supervisor.
 FRED W. KYTE, Auditor, State Hospital Commission,
 HORATIO M. POLLOCK, Statistician, State Hospital Commission.
 T. E. MCGARR, State Hospital Commission.

The CHAIRMAN: The first number on the program is a paper by Inspector MOSES ETTINGER on "Recommendations Regarding Manufactures and Industries". As he is unavoidably absent to-day his paper will be read by Mr. MCGARR.

"Recommendations Regarding Manufactures and Industries."
 By MOSES ETTINGER.

The development of the manufacturing and the industrial problem of the State Hospital Commission as applied to the utilization of inmate labor has been very much retarded by the lack of sufficient funds to equip the various institutions with plants wherein this work can be performed advantageously. During my inspection of the various State hospitals I was impressed very favorably with the splendid work that has been performed under the existing unfavorable conditions; for example, I have learned that practically all the clothing worn by the inmates is now made in shops in all of the various hospitals.

In Utica State Hospital we have a printing plant that turns out approximately the entire printed material used by the State hospitals.

In the Hudson River State Hospital a considerable amount of furniture is now being produced by patient labor that is very well made and equal to or superior to the prison made furniture that the State Hospital Commission now uses.

In the Manhattan State Hospital there is conducted a brass manufacturing industry that presents splendid opportunities if properly developed.

At Rochester the soap manufacturing department is now making practically all of the soaps used in the State hospitals, thus utilizing a great deal of material that would otherwise be absolute waste.

Practically all of the institutions maintain shops wherein are produced shoes, and brushes, that are fully equal to similar merchandise purchased in the open market or from the Industrial Department of the State Prison Commission.

As a result of my observations I feel confident that, if carefully developed, the occupational industries for patient labor can be made a medium of great economy to the State Hospital Commission, and I would respectfully urge that wherever possible every opportunity to develop plants now in operation be given the superintendents and stewards of the various institutions.

I am pleased to say that my recommendations to the State Hospital Commission have been heartily approved and that every effort has been made to appropriate such sums as were possible for this development. For example, the State Hospital Commission has agreed to set aside the sum of \$2,500 for the development and equipment of the brass manufacturing industry at the Manhattan State Hospital and I know that with improved facilities Dr. Mabon and Mr. Watson will prove that this plant will make an annual saving of not less than \$1,500.

The number of patients in the institutions of the State Hospital Commission who are physically able to perform manual labor is great enough to justify the expenditure of a sum sufficient to establish the necessary plants and the further fact that labor, when not too hard, is beneficial to the general health and welfare of these patients, makes this expenditure almost a necessity.

I know that the State Hospital Commissioners are exerting every effort to obtain the necessary appropriations and am confident that ultimately they will meet with success.

In discussing the manufacturing and industrial problem of the State Hospital Commission I consider this a favorable opportunity to present an extract from a communication I submitted to the Board of Classification in reference to the purchase of certain commodities, cloth and blankets. In this report as regards cloth, I stated as follows:

"My inspection of the various woolens purchased by the State Hospital Commission from the Prison Department, convinces me that the prices charged are in excess of the open market prices for materials of equal and in some instances, superior merit. In order to verify the qualities I have submitted to Mr. Nelson, Chemist of the State Hospital Commission, various samples of prison made materials and samples of cloth obtained in the open market.

His report shows that samples obtained in the open market are fully up to and in some instances above specifications, while of the five prison made materials only two are equal to or above specifications and three are below. A comparison of wool content shows that open market materials run 100 per cent, while the highest wool content of prison made materials is only 74 per cent.

The present cost of prison made materials is 75c. per yard

and the present cost, per yard, of open market materials submitted for test, ranges from 52½c. to 57c. This would show conclusively that the State Hospital Commission is paying an excessive price for an inferior quality, and I would respectfully recommend that the Board of Classification reduce the price of the prison made materials at least 10 cents per yard. This reduced price would not equal that of open market materials but would, considering quality, make a fair and reasonable economy to the State Hospital Commission."

At the same time I reported to the Board of Classification that their prices on blankets were in excess of the open market prices by 50c. on each blanket, and I would at this time impress upon the superintendents and stewards of our various institutions the necessity of obtaining releases from the Prison Department for the purchase of as much of these materials, cloth and blankets, as is possible. Mr. Solomon of the State Prison Department has said: "I think it would be much better when Mr. Ettinger wants blankets for us to release them, possibly, than to reduce the price. We are not able to manufacture them sufficiently for the demand."

This presents an opportunity for vast economy on cloth items figuring approximately 30 per cent on all materials purchased; and on blankets, as our purchases are about 10,000 per annum, an economy of 50c. on each blanket, means \$5,000.00 saved in the maintenance of our various institutions.

It is my belief that vocational employment for the patients of the various institutions of the State Hospital Commission is to-day conducted on a paying basis in several of our institutions and with the hearty co-operation I have received from the Commission, the superintendents and stewards, I believe it will be possible to employ at least 60 per cent of our patient population in such manner that their labors will produce a great proportion of their cost of maintenance.

The CHAIRMAN: We would be glad to have some discussion on this subject. Perhaps Dr. Mabon might say something on the proposition to establish a brass foundry at the Manhattan State Hospital.

Dr. MABON: Mr. Watson is more familiar with the proposition than I am. We are perfectly willing to establish the industry and hope to make it profitable, as Mr. Ettinger suggests.

The CHAIRMAN: Dr. Pilgrim, we would be glad to have a word from you regarding the furniture.

Dr. PILGRIM: I feel quite sure if we had a properly equipped building for the purpose of manufacturing furniture, that we could manufacture it better and at a considerable saving over the prices we now pay for the prison work. We make at a cost of \$18 a six foot settee which the prison authorities charge \$4.50 a foot for, and I am very sure the ones we make are more satisfactory and durable in every way. I think it would be a considerable saving to make more of our furniture. Probably \$25,000 would not be sufficient to more than start us as we must have storerooms for the furniture, lumber, carpenter

rooms, rooms for paint and varnish, etc. To manufacture all the furniture for the hospitals would probably require a large building, but I thoroughly agree with Mr. Ettinger that the step would be a good one and an economical one.

Dr. MABON: What would be possible with an expenditure of \$25,000.

Dr. PILGRIM: It would simply fit up an abandoned boiler house with machinery, etc., for furniture making, but we would need a storeroom to keep sufficient furniture on hand to supply the demand without long waits.

Dr. MABON: It seems to me it might be better to start with a particular line of furniture rather than make the general line.

Dr. PILGRIM: We have manufactured very satisfactory chairs and settees. We have not gone extensively into other lines except tables, dining room tables, etc., but the chairs and settees I think we make very well; they are very comfortable and so arranged that they can be easily repaired.

Dr. MABON: Do you think you could supply the institutions with all the chairs, settees and tables needed.

Dr. PILGRIM: Yes; I think we could.

Dr. HUTCHINGS: The suggestion of Dr. Pilgrim here meets with my approval. There is no one article of furniture which is so unsatisfactory as the prison chairs. They are made of brittle wood that has been very poorly cured and after a chair has been in use for six or eight months, it becomes loose in all of its joints and has to be sent to the shop to be glued. Very few of them are satisfactory. I think if Hudson River undertook first the manufacture of chairs alone, it would amply repay the investment suggested as desirable. I thoroughly believe we can manufacture in the State hospitals a better grade of furniture at lower cost than we are now paying. A few years ago on opening a new building we decided to make our own dining room tables. We wanted those of the brown pattern made by the prisons and seating seven patients. Although we were not equipped for manufacturing tables, we procured the lumber and employed some extra help for the purpose and manufactured the twelve or fourteen tables we needed at that time, a far better article for almost 25 per cent less than the prisons charged for them, and I might say that in the seven years they have been in use, not one of them has required any repairs. One of the difficulties, perhaps the principal one, with furniture from the prisons is that the wood from which it is manufactured is a poor grade.

Dr. PILGRIM: I would like to say a word or two in regard to dining room tables. I have given a great deal of attention to that subject and I think that the other superintendents have done the same thing. I think we will all agree that there is nothing so offensive and objectionable as a soiled tablecloth. At Poughkeepsie we pay more than \$1,200 a year for tablecloths. We can not overcome the ob-

jection of using soiled tablecloths, unless we change them after every meal. A number of years ago I had some tables made with cherry tops nicely polished. Dr. May has seen them and I think he agrees with me they look much better than the ordinary tablecloth after it has been used a meal or two. Recently I have taken up the question of using for table tops this white glass that is used in the Childs restaurants. There are two objections to that, the first is that it is rather expensive. The tops would cost about \$25 for a table three feet wide by five feet long. Then they are noisy in a large dining room; the dishes rattling on this hard surface would make the dining rooms objectionable on account of noise. It occurred to me that if I could find a perfectly white linoleum, it could be put on the tops of the tables and fastened down with a little binding or may be nickel plated strips, or brass or something of the kind, or a wood binding perhaps, and would make a noiseless and soft covering, one that would be very durable. If you could cover the tables with this linoleum, where the color goes all the way through, and make it perfectly white, I think you would have no trouble with the dining room. The only trouble is to find a material that is white. I have succeeded in getting a sample of linoleum that is not quite white, made in Germany, it would be a difficult thing to get that now, but there is some in New York. The trouble is it is a little yellow. If we could get white, I think it would solve the problem.

Dr. MABON: Would you not have trouble with the expansion and contraction of that the same as on floors?

Dr. PILGRIM: You could have the binder take care of that.

Dr. MABON: What about covering the round tables?

Dr. PILGRIM: You could get linoleum six feet wide, cut it perfectly round to fit the table. I think it would be a very good solution of the trouble, and do away with the expense of washing, the labor and all that. If our expenditures for table cloths are \$1,200 a year, for the whole State they must be \$12,000 a year.

Dr. WAGNER: We use a great deal of white enameled cloth.

Dr. PILGRIM: That goes to pieces quickly. If we could have something more durable, it would be more satisfactory.

Dr. MABON: I have thought of this "monel metal" used for covering tea urns.

Dr. PILGRIM: The glassware would be beautiful in appearance, but \$25 for a table top would be very expensive.

Commissioner MAY: How would the linoleum compare with the polished wooden tops.

Dr. PILGRIM: I think they would look better if you could get perfectly white linoleum. If wood is used it must be a kind which will take the oil well, and it would make the dining room look too dark.

Commissioner MAY: Would not the linoleum get dirty?

Dr. PILGRIM: No; the color goes all the way through and it is washed very easily. I am going to New York to get a sample which

is made in Germany and is said to be a little whiter, and try it on a few tables.

Commissioner MAY: I think it would be advisable to try it out on a few tables; it may be worth while.

Dr. PILGRIM: I am not sure that it would not pay to use vitrified glass.

Commissioner MAY: I think this is a subject worthy of careful consideration. I agree with Dr. Pilgrim that there is nothing more unsightly than the soiled cloths on the tables of the dining rooms which are used by disturbed patients. It is almost impossible to keep clean tablecloths in rooms where the best patients eat, unless they are changed every day. I have thought for a long time it would be better to use the polished wooden top tables in every dining room. I think this is a subject well worthy of consideration before we go into the manufacture of tables at Poughkeepsie, and I think we ought to take up the manufacture of furniture as soon as we can. I think we would save a good deal of money making our own furniture and get a better grade than the prisons furnish. Those of you who have seen the furniture made at Poughkeepsie will, I am sure, agree with me, and those who have not, I hope will take advantage of the opportunity to see the work they are doing there as soon as you can.

Dr. RYON: The first time I visited Matteawan and Dannemora I was particularly struck with the appearance of the dining room tables which are made of cherry, kept highly polished and really present a very fine appearance in both institutions. I think they are preferable to tablecloths.

Mr. MCKINNY: It has been said that 60 per cent of the patients are capable of doing some work. How are they to be selected for the various industries?

Commissioner MAY: For the manufacture of furniture, I think it is quite possible we would have to transfer from other hospitals to Hudson River, patients who are capable woodworkers and carpenters. If this matter is gone into to any great extent, some of the other institutions could send patients. I think with the force already there a good beginning could be made.

Dr. PILGRIM: It is only fair to say that the most of the work is done by skilled mechanics and the cost which I have given includes the work when it is done entirely by paid labor, and even then we make a saving of nearly 50 per cent over the prison prices. A short time ago we received some tables from a prison and as I was so pleased with their appearance, they were nicely rubbed and finished, I wrote to the prison concerning them. But I found after using the same tables three or four months the tops have bulged so that they only rest on the two ends.

Commissioner MAY: We will proceed to the discussion of the advisability of transferring internes from the non-competitive to the competitive class. This is a question brought to our attention by the

Civil Service Commission. I see Mr. Root is here to-day representing the Civil Service Commission. I would like to have him present his views to the conference.

MR. J. W. ROOT: Mr. Chairman, I came down here at the request of Mr. Saxton to represent him. He has to be in New York and could not be here. I came down here to listen, not having anything particular to say about the matter, and find out how you feel about it. That was my particular purpose. I am not down here particularly to represent the Civil Service Commission and I do not know their views in this matter. I would say personally that it would seem to me that the position should be put into the competitive class, at least it would seem to be worthy of a trial. When the salary was only \$600 per annum competition was not practicable, but at a salary of \$1,000, it would seem it might be practicable and worthy of trial.

DR. RYON: I think that inasmuch as the position of medical interne is one which is more or less of a temporary character, the superintendents should be allowed every latitude in selecting men for appointment.

COMMISSIONER MAY: We appreciate very much the courtesy of the Civil Service Commission in affording us such an ample opportunity to make known our views on the subject, and in view of the fact that they have been kind enough to delegate Mr. Root to attend here, I would like a very free discussion on the part of the superintendents.

DR. MABON: It seems to me, Mr. Chairman, that the position of medical interne should be in the non-competitive class. At one time years ago it was placed in the competitive class and the eligible list was made up of candidates arranged in the order of their standing in the State examination for license. We had great difficulty in filling the positions at that time. When a vacancy occurs in the medical service, it is sometimes difficult to get an assistant physician, two or three superintendents may be after one assistant physician, and it results in delay in filling the vacancy. If we have a list of men who can be appointed as interne in the non-competitive class, when a vacancy occurs we can send for one at once with very little interference with the medical work of the institution. Furthermore, it enables us to train men for the higher positions. We select the men first. After they have been in the hospital for a time they must take the examination for promotion. We can tell by that time whether they are men who can make good. We can weed out the inefficient ones and it seems to me we should have the opportunity of filling the positions whenever vacancies take place. The medical positions are very hard to fill. The men who get on the list for assistant physician, who have general or special hospital experience, are not all desirable.

DR. PILGRIM: I quite agree with Dr. Ryon and Dr. Mabon and feel very certain that this proposed change of classification would be unwise. In fact instead of making the examination non-competitive, I would go farther and make it without any examination. As Dr.

Mabon says, the year as medical interne gives us a chance to size the man up and determine his value in the service. This should induce a great many men to enter the service who would not enter if they had to go into a competitive examination and run their chances. By taking these men and appointing them as opportunity occurs we are able to improve the service. I think it would be a serious mistake to put this position in the competitive class.

Dr. MABON: I offer a motion that it is the sense of this conference that the position of medical interne be continued in the non-competitive class.

The motion was duly seconded.

The CHAIRMAN: The motion is made that it is the sense of this conference that the position of medical interne in the state hospital service be continued in the non-competitive class.

Dr. HUTCHINGS: Would it not be well to mention in that resolution that this is done because the position is a temporary one? My understanding is that it is not really an entrance into the service, that it is probationary, that the real entrance into the service comes when the internes pass the competitive examination after the year, when they must pass it or leave. It is not the intention when an interne enters the service that he shall remain indefinitely as an interne.

Commissioner MAY: There is no reason why a man can not continue to serve as a medical interne for ten years. There is no limitation on the length of the service.

Dr. MABON: They are told they are expected to take the examination, but there is no requirement to that effect. It seems to me a simple resolution is better to go to the Civil Service Commission, than to put in this modification.

Dr. PILGRIM: These men must be licensed and I have always made them take the first examination.

The CHAIRMAN: If there is no further discussion, I will call for a vote.

Dr. Mabon's motion was duly carried.

The CHAIRMAN: Mr. Root, would you care to say anything further on the matter?

Mr. ROOT: I think not. I came down to see how you felt about it and I have found out. I shall of course report your action to the Commission. We would be very glad to have you communicate the action also to Mr. Saxton in due course.

Dr. MABON: I would say, Mr. Root, that none of us here have anything but the best interests of the patients and institutions at heart. We believe our position is primarily for the benefit of the patients.

Mr. ROOT: I understand that.

Dr. HUTCHINGS: Before leaving this subject, I would like to offer a resolution to the effect that any physician appointed to the position of medical interne be required to take the first promotion examination which is announced and held after the expiration of one year's

service as medical interne. It seems to me that a man who is content to come in this service and spend ten years in the lowest position is entirely undesirable and the State hospitals have no proper place for such men. I should like to add that the position of medical interne be for one year or until the next competitive examination which is held after the expiration of that year, and if the interne fails of promotion, fails to pass the examination with the minimum requirement, that he retire from the position at once.

The motion was duly seconded.

The CHAIRMAN: The motion is duly made and seconded that it is the sense of this conference that after one year of service, the medical interne should take the next examination, and if he fails to obtain the minimum rating, that he should cease to remain in the service.

Dr. ASHLEY: I would like to understand in the first place whether this motion carries with it the necessity of promotion if successful in the examination. If so, I should be opposed to it, because, there are times when, for economical reasons, we should not want to make promotions to the higher grade. We might have three internes take the examination. If this motion prevails, it would be necessary to increase the salary allowance.

Dr. MABON: I would like to object for this reason: A man comes to the hospital from, say John Hopkins Hospital, and he would like to have two or three years' training in psychiatry. We are trying to educate the public for prevention of insanity. Why should we not permit this man to remain two or three years? If he is shut out in his preliminary training, he can not make the best use of his knowledge, whereas if permitted to serve the two or three years, he should be well prepared to advise the general public in matters of mental hygiene.

Dr. WAGNER: It seems to me these instances are not going to occur very often and they might very properly be referred to the discretion of that superintendent.

Dr. RYON: In answer to one point raised, I would not think that it would mean that the interne should necessarily be promoted because he has passed the examination.

Dr. MACY: I think this resolution as it stands is well enough. It is the general understanding that the position is temporary pending the passing of the next examination. This meets our necessities at present and I can see no reason for changing. While we will have occasional instances where a modification is desired, it is a very desirable thing to leave those matters to settle themselves.

Dr. HUTCHINGS: I would like to say a word or two more. The circumstance Dr. Mabon mentioned does not seem to me to carry weight. A year's training in a hospital for the insane which an interne receives is, in my opinion, quite sufficient to qualify him to take a place in general practice with a good working knowledge of psychiatry. But above all the important point is that we ought to

impress upon young men coming into the service that they must be ambitious, must read, study—prepare themselves for further advancement, else we are practically putting a premium on dead weight. In my own service, if an interne shows no disposition to take the examination, or if he did take the examination and did not pass, I certainly would not want to retain him in the service, and yet if he was in the service, I would not have the authority, under the sentiment of the conference, to ask him to retire. It seems to me the enforcement of a resolution of this kind would tend to improve the calibre of the men on the staff.

Commissioner MAY: As I understand it, you would require a man after a year's service as interne to take the next examination for assistant physician. How long after the expiration of that year would you expect him to terminate his service at the hospital if he had not had an opportunity to take the examination?

Dr. HARRIS: As I understand the resolution, this man has been in the hospital service a year and takes the first examination for promotion after that time. If he passes that examination he can remain as interne until he gets an actual appointment as assistant physician. It does not put him out of the service unless he fails; it does not make any difference whether the examination comes one, two or more months after the year's service is completed, but the test gives you a chance to get rid of a man you don't want if he does not pass.

Dr. MABON: I don't object to getting rid of a man with a failing, and don't have to have an excuse of an examination for so doing. I still reiterate if a man wants to stay in the service two years, it does not seem reasonable to compel him to take the examination for a position he does not want and has no intention of accepting.

Mr. McKINNY: Would not a superintendent make a mistake in not removing a man who was not competent?

Dr. HUTCHINGS: It must be for cause stated in writing and an opportunity afforded for a hearing. If you have kept him a year, how could you remove him?

Dr. MABON: I think every superintendent can manage a case of that kind. If a man goes along fairly well and falls down at the end of a year, we can tell him, point out his errors. Then if he does not change, we can remove him. I would not hesitate, even if he had been there two years.

The CHAIRMAN: If there is no further discussion, I will call for a rising vote.

Four voted in favor of the motion and twelve opposed.

Dr. GRANGER: Is it right for the managers to vote? They are a part of the conference.

The CHAIRMAN: There is no objection to the managers voting; it is an expression of opinion, not binding.

The motion is lost, four affirmative and twelve opposed.

The next on the program is a paper on the "**Recent Progress in Psychiatry**," by Dr. AUGUST HOCH, Director of the Psychiatric Institute. (Dr. Hoch's paper will be published later.)

The CHAIRMAN: It has been suggested that before adjourning for the noon lunch that we request that all the statistical cards be sent in as promptly as possible after the expiration of the year. The Commissioner of Efficiency and Economy, who is to be here, can not come until about two o'clock, so that we will not take an adjournment until that hour.

AFTERNOON SESSION.

The CHAIRMAN: Ladies and gentlemen: We will depart from the program. The next will be a discussion of the appropriations made for the coming fiscal year. Mr. Stanley J. Quinn, Executive Auditor, will say a few words on that line.

Mr. QUINN: Ladies and gentlemen: The Commission spoke to the Governor some time ago and called his attention to the fact that there was misapprehension on the part of the superintendents in regard to the Governor's part in the making of the appropriations for the coming year. At the time the Governor told me he would be very glad to be here at your next meeting, but to-day he is in New York and can not attend. Consequently, he has asked me to say just how he felt about the appropriations. In the first place, as the appropriations came to the Governor, he had absolutely nothing to do with their amount. When they came to him they had been made up by the Senate and the Assembly. He could sign or veto. If he had vetoed, there would have not been any money at all for maintenance. Now he has caused an investigation to be made of the amount of money that the hospitals will need. He has talked with the Commission, former Commissioners, people generally, boards of managers and others interested in the hospitals, and he has come to the conclusion that if the amount of money which has been appropriated for the salaries of employees is not sufficient to maintain the hospitals, he will stand ready to go before the next legislature and recommend that another appropriation be made. He wants to assure the superintendents that he is just as anxious to maintain the standard of efficiency as they are, and he stands ready to do everything in his power to maintain that efficiency. (Applause.)

The CHAIRMAN: I am sure I voice the sentiment of the conference in expressing our great appreciation of the Governor's interest and co-operation in this important matter.

Dr. Charles Bernstein, Superintendent of the Rome State Custodial Asylum, wishes to bring up the question of transfers from his institution to the State hospitals.

Dr. BERNSTEIN: This is a problem of the borderline case—the case where there is a question whether the patient should be really classified as insane or feeble-minded—and it has become rather acute

in the last several weeks or months. I dare say in the last six months we have had at least twenty cases that left the State hospitals to come to us. These cases are what we would term, technically, dementia præcox or paranoid cases; they present a psychosis for a short period and then an interval where no abnormal mental activity takes place, when they could pass for feeble-minded. A case which recently brought this thing to a head recently came to us from Dolgeville, Fulton County. The boy is about 20 years of age. He had been home all his life. Six months ago his father consulted me and stated they could not take care of him at home. The mother was an invalid or had died, and the father away from home. I suggested that he take the patient to a State hospital as a voluntary case. However, he consulted the hospital authorities and he came and again asked me to take the case. I took the boy in April and kept him until June, and during that time, he was going around picking thousand dollar bills out of the air, so I decided that he surely was insane and had him committed to a State hospital. His father came back to see me three weeks ago and said the boy had to be discharged from the State hospital as not insane within the meaning of the law. I took it up with the Board of Managers and they think we should make some arrangement with the State Hospital Commission whereby we would not have such repeated transfers.

I appreciate there are intervals in which such people do not have psychoses and do not act as insane people, and within six months they again show evidence of insanity. We can not care for them with our service. Our organic law distinctly provides that we shall not care for insane feeble-minded in the institution. Some legislation should be enacted by the coming legislature to provide just how these cases are to be cared for. If the State hospital service is to care for them, well and good. If we are to care for them, we should have help to get suitable accommodations.

The CHAIRMAN: Perhaps some of the superintendents have views to offer on this subject.

Dr. BERNSTEIN: I would like to offer a suggestion, perhaps I can prod some one to activity. I was recently interested in Dr. Rosanoff's article dealing with an analysis of 600 cases of insanity five years after admission, showing that some 25 per cent of those who remain in the hospital after five years are the dementia præcox, paranoid and senile cases. They are the same class we are discussing. They need a lot of encouragement, training, brains, possibly force to keep them active. We are dealing with the same problem. It does not make so much difference whether we care for them. Why not have each institution keep what it gets of this class of humanity which needs constant care and treatment, and not add the additional expense of transfer and recommitment.

Commissioner MAY: As Dr. Bernstein said, this is a question of the care of mental defectives, at least it seems to me that it is pri-

marily a question of the care of the feebleminded. The law is quite specific. It is not a question of law, it is rather a question of the policy of administration. The insane, of course, should be committed and will be received at the State hospitals for the insane, and while the Rome State Custodial Asylum is prohibited from receiving insane persons, it is equally true that the hospitals for the insane are prohibited by the same laws from receiving these simple mental defectives, who are not suffering from psychoses. The procedure heretofore, as the doctor has suggested, is to transfer those to the hospitals and then after recovery the question comes up for their transfer to Rome and other institutions for feebleminded. These are almost invariably mere episodes in the history of the person who is mentally deficient. It seems to me while he is suffering from these episodes, he should be given special care and attention at the Rome and other institutions so that it would not be necessary to have these repeated transfers. It seems to me the necessity of such accommodations should be recognized in the law and all the institutions for mental defectives should be given proper facilities to take care of such cases. I feel that this is a movement in which we should co-operate fully, and I think if we agree on this policy we ought to assist them to get the proper appropriations for caring for these people. It seems to me that is the proper way, rather than to care for them for a lifetime in institutions for the insane with those who are mental defectives, and we might more properly make provision for the care of these people during these brief episodes in the institutions where they belong. I should like very much to hear from the superintendents of the hospitals regarding this matter. I had hoped that Dr. Bernstein's prodding would bring some results.

The CHAIRMAN: Dr. Macy what is your idea on the subject?

Dr. MACY: I do not think that this is a matter which is going to be settled in any very small way. It comes back, as I look at it, to the question of sufficient accommodations for people of mental enfeeblement, whether classed as insane or feebleminded people. There was an attempt years ago to entirely separate the care of these people. That shows very clearly in the constitution, yet when the Insanity Law was amended there crept in a provision providing that they be transferred to State hospitals. Neither their department nor ours has sufficient funds to take care of the people who are offered to us. I think all mental defectives should have been under your Commission, then requests could have been made to the one department. Being under two departments you get diverse interests. I think the matter should be thought over very carefully, before deciding just what action we want to take.

Commissioner MAY: I would like to ask Dr. Bernstein what he thinks as to the advisability of amending the law so that the mental defectives in these institutions who are temporarily insane could be cared for in these institutions; I mean by that an amendment which

would authorize that care and at the same time carry with it an appropriation which would make it possible in the way of buildings and maintenance. My suggestion would be this: We do not need to take these cases if an appropriation is gotten for a special building at Rome for the care of feeble-minded cases with psychoses. It is the same thing at Craig Colony. It seems to me as long as the State must care for the patients somewhere, they would best be cared for in the institutions to which they primarily belong.

Dr. BERNSTEIN: It seems to me if the State hospitals had that form of construction, etc., it might be best to care for them there. It is only a very few of these cases that require care at any one time. We have forty in the "Flying Squadron", but the cost of construction for such cases is considerably higher than for the class we are supposed to receive.

Mr. ELWOOD: I would like to ask about how large a psychopathic ward Dr. Bernstein would need to care for these cases?

Dr. BERNSTEIN: One small cottage providing for 40 or 50.

The CHAIRMAN: It occurred to me that inasmuch as the Marcy farm is not more than ten or twelve miles from Dr. Bernstein's institution, with communication very rapid between the two places, Dr. Palmer might have something to offer on this subject in the way of helping out Dr. Bernstein.

Dr. PALMER: It seems to me that the whole matter depends upon conditions. Now, I do not think that Dr. Bernstein would have any objection whatever to receiving all these feeble-minded people we are endeavoring to put into his institution if he had buildings to take care of them. It is a matter of expenditure; it is a matter of economies, a matter of money. When we get into strenuous times Dr. Ryon comes around, or some member of the Commission comes around, and says we got to get out all of these people. "If you have got anybody in your institution that does not belong here get him out." We go to work and look over very carefully every patient we have in the institution with the idea of getting him out of the hospital, if he is not properly there, and placed in some other institution or else discharged or put into the custody of family or friends. At the present moment, I have on parole from a population of fifteen hundred, one hundred and eleven patients who are not in any institution whatever. There are only a few of these cases that have to be transferred to Dr. Bernstein's institution or perhaps Newark. Some of them have been put into the county houses, and I might stop right here to say that if the county houses were compelled to have them they could take a number of defectives who are now in the State hospitals. They maintain, when application is made for their reception, that if the patients have any mental trouble whatever they can not care for them, and they can not care for them because they have not a single attendant or anyone to give their inmates any oversight whatever. The counties do not want to take that expense upon themselves.

As I see it, there are only a comparatively few of these cases that can be transferred from the State hospitals to the Rome or Newark institutions, comparatively few in number, and it is only now and then that a transfer is asked and that largely because of the two reasons that I have mentioned, one being lack of accommodations, the other lack of funds. If Dr. Bernstein has not room in his institution it should be enlarged. It presupposes that inasmuch as there are two kinds of institutions that the feeble-minded should be in the institutions for the feeble-minded, and I use that term in the broad sense, and the insane in the State hospitals for the insane. I do not think it is worth while to change the institutions at all. It seems to me that with a very little addition in accommodations, perhaps to both kinds of institutions, at least to Dr. Bernstein's institution, he could handle all these cases without any difficulty whatever.

The CHAIRMAN: We will now take up the discussion of finance, and in doing so I would say that we would like to hear from each of the superintendents. This discussion is, of course, largely for the coming year, the present year being so nearly over.

Dr. PALMER: At the beginning of this year we started out with an appropriation of \$372,000. At the beginning of the last quarter of this year we were told we had \$345,000; that was all. The appropriation for the year beginning October 1, 1914, was \$294,000. If the standard of care is kept where it is at the present time, the number of employees, the grade of food and clothing maintained, I do not see how we can care for our patients with that amount of money, assuming we have the same number of patients we have now.

The CHAIRMAN: How much more do you estimate you are going to need, to get down to the practical part of the discussion?

Dr. PALMER: As near as I can now estimate we will need from \$60,000 to \$70,000. The appropriation this year was divided into two parts, salaries and wages and maintenance. That includes both of these divisions.

Dr. ELLIOTT: It would be rather difficult to estimate accurately just what the deficiency for maintenance will really be this next year on the basis of the appropriation which takes effect October 1. So far as the salaries and wages are concerned, that can be definitely estimated on the basis of the present force of employees at the hospital. On that basis, at the end of the year if we are to continue the employment of the same number we have at the present time and which we have had for years, there will be a deficiency of about \$24,000 for salaries and wages. Just what the shortage will be for the rest of the maintenance accounts it would be difficult to estimate, but I would put it at from \$15,000 to \$25,000, so that I feel that our appropriation is from \$40,000 to \$45,000 below what it ought to be.

Dr. PILGRIM: If we are to estimate for all the employees we need for what we would consider proper supervision and care of the insane, and for the purpose of keeping up the standard heretofore existing,

we will have a net deficiency of about \$10,000 in the payrolls. We have \$287,000 for salaries and wages. By including the number that we think necessary, the payroll estimate will be about \$300,000 for the year, but owing to our inability to fill all vacancies and to lost time, the net deficiency according to past experience would be not more than \$10,000.

Then we have a legislative appropriation of \$347,000 on the other estimates for maintenance, supplies, repairs, clothing and all that. We estimate that if we care for patients as we ought to care for them, furnish proper clothing—during the present summer we have been unable to furnish summer underclothing, the patients have worn winter underclothing all summer—the deficiency on maintenance will be about \$53,000, that will be a total deficiency on those two estimates of \$63,000. We have a building about ready for seventy-five patients, and by crowding some of the other wards we shall probably have shortly after the first of October, one hundred additional patients. If we are to care for one hundred patients more than we are caring for now at \$200 per capita, that would be \$20,000 more, a total of \$83,000. If we should get our appropriation of board moneys as heretofore that amount would probably be \$56,000, so that in reality if we get the board moneys we would have a net deficiency of only \$27,000.

Dr. ASHLEY: At Middletown during 1912-1913, the per capita cost was \$200. During 1913-1914 it will approximate \$208, a total of \$416,000. The coming year promises to be the most expensive year in our history, judging from the present outlook of prices for commodities. If we are able to keep the cost down to the average of the last two years, \$205.50, based on that per capita and admitting one hundred more than we cared for during the last year, the total cost for next year would be \$430,000, while we have only \$360,000 for the year. Our estimate for the October-December period amounts to \$129,000, a per capita of \$59.00, and wages and salaries \$43,499, which exceeds one-fourth of the total appropriation for this purpose by \$4,831. Our general estimate also exceeds a quarter of the year's appropriations. This is accounted for in part by the fact that the winter is the most costly part of the year. We have a total appropriation for the year of \$360,000 and for the first three months we would therefore estimate for \$90,000, in round numbers. The excess in salaries and wages for the first quarter is \$5,700, and the excess of maintenance nearly \$12,000, a total excess of over \$17,000 for the quarter. Not taking into account the number of vacancies and people dropped during the past year because of lack of funds, our total deficiency for the coming year will be about \$75,000 if we maintain the standard we have been maintaining during the last two years, when the hospital has been practicing in its own belief the strictest economy from one point of view but extravagance from another. I mean by that that all improvements and repairs have been deferred because of lack of funds. The time is coming when large sums must be spent for this purpose.

Commissioner MAY: When you say you are going to have a deficiency of \$75,000 you mean if you do not get any board moneys?

Dr. ASHLEY: Yes.

Commissioner MAY: The assumption is they will be reappropriated, as heretofore.

Dr. ASHLEY: We have no knowledge to that effect. We know we have an appropriation of practically \$361,000 for the year.

The CHAIRMAN: What do your figures indicate that the amount required above the appropriation will be?

Dr. ASHLEY: About \$75,000.

Dr. HURD: We have an appropriation for salaries and wages of \$173,000. If we restore those who were cut off in June and add ten more, which our increase in numbers and our very low percentage of attendants to patients necessitates, we estimate that the salaries and wages will be \$202,000, which leaves a deficiency of \$29,000 for wages. The maintenance appropriation is \$235,000. The estimated cost of maintenance, if we get what we feel we should have, will be \$288,000 which would make, roughly, a deficiency of \$53,000. The two combined show that we should have \$82,000 not counting the possible reappropriation of board moneys.

Dr. WAGNER: We have gone very carefully over our estimates for next year and based upon an average population of 2,400, which we believe to be approximately correct, we should have \$528,000 to operate the institution if the average standard of care heretofore maintained is continued. The appropriation is \$460,000 so that we shall be short approximately \$68,000 unless we receive some of the board moneys, which would decrease that shortage just so far as the amount of the board moneys is made available for us. We have gone over the figures showing the cost of many supplies during the first six months of the current year and compared them with prices that we shall have to pay during the first six months of the coming year, and we find in many instances material advances, so that the cost of maintenance will be increased in that way materially the coming year over what it has been in the past year. The shortage, as we compute it now, will be approximately \$68,000.

Dr. HUTCHINGS: When the legislature adjourned in May and the figures were made known of the Commission's appropriation, it was evident to us that some very radical reductions would have to be made at Ogdensburg in order to come through the year without a deficiency. A number of employees were laid off on the 1st of June and some vacancies which already existed in the position of attendant were not filled. We had to do this not only for the current year, but, knowing the appropriation for the next fiscal year was reduced also, we intended to carry through this reduction the next fiscal year. Those positions, by direction of the Commission, have been restored now, and whereas we were anticipating the possibility of coming through with the appropriation made for wages and salaries of \$184,000, by

reason of restoring these positions we will have a deficiency in salaries and wages of \$12,500.

It is difficult to estimate the amount of the deficiency in maintenance on account of the unsettled state of the market, the fact that prices of commodities are rising and the uncertainty of the situation abroad, but estimating that the hospital would have a population of two thousand for the next fiscal year, which is rather a low estimate in view of the fact that we have now one thousand nine hundred and eighty, and over one hundred on parole, but estimating on the basis of two thousand we believe without taking into account any further increase in prices due to the war, we will have a deficiency of \$42,645.

Dr. HOWARD: I dislike very much to get up here and talk about a deficiency. I have never gone through a year's work in the management of the institution and had a deficiency, nor had a deficiency in any special fund appropriation, and do not intend to have during the coming year. It seems to me that it ill-befits a man in the employ of the State or municipality to run his affairs and have a deficiency. It is his duty to take what he gets and do the best he can and go through the year thereon. I do not intend to have any deficiency. If the institution should be put back on a hospital basis and not on the custodial care basis, as it is now so far as the officers are concerned it would take an added appropriation in salaries and wages of \$8,000. We should be put on a proper hospital basis so far as the food and maintenance and care of patients are concerned, independent of wages. It is hard for me to say what it would cost because ever since the prices have been going up, which covers quite a considerable period, the allowances to the patients have been going down and the equipment of the institution lowered so that in some respects to-day it is not as well equipped as it was when it was bought from the county of Monroe by the State. I should estimate that in the present condition of affairs \$200 per capita is not sufficient to provide properly for the insane in the State of New York, that it should be more properly estimated at \$225 per capita considering what the intelligent portion of the community desire to have done for their inmates deprived of their liberty on account of insanity and locked up in the State institutions for the insane for the protection of the community. If we are to reach up to what we did last year it would require an additional appropriation for maintenance, according to the best of my knowledge, of \$37,500, which should be added to the \$8,000. There is no such thing possible as the State of New York, through its Legislature, doing everything for the insane, that a lot of ingenious men conclude is best for them, but the doctors are right about it. This Government should be on such a stable footing that whatever the Hospital Commission determines is proper and right to be appropriated for the care of the insane and for construction for the insane for the ensuing year should be made by the Legislature without words or contention or without opposition. That is what the people of the State of New

York desire and what they would be glad to uphold, and then the State Hospital Commission could meet the needs of the year according to its best judgment and we would not have this constant scrapping about a few more dollars for this, that and the other thing. Other States with lower standards do not have that sort of confusion, a few do, but many of the best States do not. There ought to be some special arrangement whereby intelligent people who know the conditions should fix the amount and see that the money is used honestly and properly, and there would not be these accusations back and forth as there has been for the last ten years in the State of New York. I am very sorry to have to say anything about this, but we will not have a deficiency even if we lose part of the money we now have.

Dr. POTTER: By a great deal of figuring and scheming we do not expect to have a deficiency this year. We did not drop any employees but we feel that the institution particularly in the line of necessary repairs, clothing, and amusements for the patients, was seriously hampered. Up to the present time we have spent about \$218,000; our appropriation for the coming year is \$224,000. With the increase in prices and with the necessary expenditures which should be made for buildings, we believe that at least \$20,000 in addition to our appropriation will be necessary to carry out properly the purposes of the institution.

Dr. HARRIS: I think the amount of maintenance for Mohansic for next year as mentioned in the supply bill will be sufficient for us, basing our figures on what we have expended this year.

Dr. MACY: When I read the program I did not know exactly what information was wanted on the finances, whether to be based on the allowances recently made or whether there would be an arrangement for any increase in funds. I therefore made up a statement based on the conditions existing before the receipt of your last circular letter. Our last estimates showed us we would have a deficiency of \$12,000 on maintenance and \$2,500 on salaries and wages for the quarter. To give you the amount for the full year we would have to take into consideration the amount of the restorations, places to be filled, commutation, etc. I would rather not give you the figures now.

Dr. MABON: The appropriations for Manhattan for 1914-1915 are: For salaries and wages, \$377,000, for maintenance, \$525,000; a total of \$902,000. Based on our past experience and figuring the necessary increase in population, we estimate that we should have in order to maintain our former standard of care not less than \$100,000 additional. These figures are practically the figures representing the conclusion reached by the Department of Efficiency and Economy regarding the wages and supplies at our institution. They are based on a population of 5,000 patients.

Dr. SOMERS: In spite of a further increase in census of thirty-five in our small hospital, for the present fiscal year and with the econo-

mies which we have exercised due to leaving vacancies unfilled, and upon a few deductions elsewhere, we are able to come out at the end of the present fiscal year without a deficit. However, our appropriation for the coming fiscal year is \$33,000 less than heretofore. In other words, we would need \$24,000 for maintenance and \$8,000 for salaries and wages if we maintain the institution as we feel it ought to be conducted.

The CHAIRMAN: We would ask that each hospital send a written statement showing the amount of money needed next year, based on the per capita cost and the average daily population, excluding paroles, so that we will have a written statement here for our consideration.

We have with us to-day Commissioner Delaney of the Department of Efficiency and Economy, who will say a few words on the system of accounting now in use at the hospitals.

Commissioner DELANEY: I have listened with a great deal of interest to this discussion of the amount of money available for the care of insane. I think I might say that I did not have much to do with making up that schedule. I do not say that for the purpose of escaping responsibility, but the Legislature did not accept my views regarding the matter. I have understood that the sum of \$600,000 was deducted from the original estimate, which represents the amount collected from the relatives of patients. In making up the final appropriation bill a proportion of that sum was deducted from the appropriation for each institution. If the Chairman can find the estimate he submitted of the board money to be collected by each institution, you can pretty safely add that to the sums shown on the face of the appropriation bill. It has been the practice, and a bad practice, in recent years, to deduct from the amount shown to be necessary the amount collected during the previous year for board moneys, and then re-appropriate the deficiency in the Supply Bill of the next year. This has been done to obtain the political advantage of an apparently low appropriation. You are now suffering the natural result of that bad financial policy. In the conflict between the houses of the Legislature which prevailed this year, every item of appropriation was reduced—first by one house and then by the other—to achieve a record for economy. Instead of placing the usual item of \$600,000 in the Supply Bill to cover the deduction of board money the previous year, only \$275,000 of that amount was allowed, leaving you in the middle of the summer with a great shortage in your maintenance appropriations. I personally had charge, for the Governor, of the Appropriation Bill of 1913, and I know that \$600,000 was deducted from the sums considered necessary for the institutions, with the expectancy that the deficiency would be provided in the Supply Bill this year. Therefore, when the Legislature appropriated only \$275,000 it acted in bad faith. I am sorry to hear a few here say: "We are going to have a deficiency." Dr. Howard expresses the right attitude when he says: "There will be no deficiency at Rochester."

Even if you do not get the board moneys, you have no right to permit the expenditure of more money than the Legislature provides.

That is not the subject of my talk, however. I am not going to make a speech on an appropriation bill which I prepared, but which was not accepted. I advised against the practice of deducting the board moneys. I think the Legislature ought to appropriate the amount required to support the institutions, and the report and recommendations I filed with the Legislature contained the amounts a careful investigation indicated were necessary. If you had received the amount I recommended you would have plenty.

I think your trouble has been largely because of lack of information on the part of the public regarding the intimate details of this work. I have been trying to learn those details. The staff of the Department of Efficiency and Economy has just completed, practically, an investigation of all the hospitals of the State. I can now say that, in my judgment, the hospitals are well managed and in good condition. I am quite prepared to say that, gentlemen, to the public, to as many as care to hear my voice. I can conscientiously say this because we found such a vastly greater proportion of good than bad. But there are a good many things you yourselves ought to pay attention to and correct. I mean in the way of placing your houses in such order that any citizen who cares to inquire may readily get a complete understanding of your operations.

I find that no two hospitals have the same system of records. You all have a few forms of estimates, vouchers, requisitions and so-called emergency ledgers that are alike, but these points of similarity are very few. The number of different forms and books and slips and certificates in actual use is almost uncountable. Each institution has developed something that no other institution has, and yet all have precisely similar operations.

There is no possible way that any critical investigator can ascertain the cost of your work. No two institutions make their costs in the same way. In one institution (and I am not going to mention any names under any provocation whatever), in one institution the laundry costs, the farm costs and the carpenter shop costs are kept. The farm cost record includes the wages and commutation of the employees who are engaged in directing the farm operations, but no allowance is made for the value of the inmate labor employed. Right across the road in the carpenter shop the cost records includes the wages of attendants and per capita cost of the inmates, but no commutation of employees. Down in the laundry they include all three in the cost record. Of what value are such cost figures? You go to the next institution and you will find an entirely different set of conditions. Our experience has disclosed conditions where almost no records were kept from which a real audit could be made, and also disclosed other places where very complete records were voluntarily kept.

We find in the care of patients' property a further illustration of that lack of uniform system. We found in one institution that articles taken from patients upon admission are put into envelopes and packages which are thrown into a box without any attempt at an index. In another institution we found that all the watches that had been accumulated were tied together, and all the rings likewise, and all the pins and brooches and other similar articles of jewelry gathered together, each having attached to it a small tag bearing the owner's name; but we also found that some of these tags had fallen off and there was no descriptive index of the articles and no means of determining the owners. In this part of the institution work we again found conditions that range of no system of records at all up the scale of efficiency to one institution where every patient's property is placed in a separate envelope and a card index is kept and, at any time, a complete audit can be made.

Likewise with patients' cash—the money they bring in. We found bankbooks that had not been presented to banks of deposit to have interest credited for twenty years. There were patients who had large sums of money, and who could well afford to pay for their maintenance, of whose resources there was no record in the Hospital Commission, no record in the books of the institution anywhere.

One of the reasons I say the hospitals are pretty well managed is the fact that in all our investigation we did not discover one single missing item, one single defalcation. We have discovered a few small irregularities, which have promptly been made good on attention being called to them, and which were probably the result of accident or oversight.

I am not here to-day, however, to impose upon you a complete new system of records of my invention. I have here prepared a number of forms to suggest and a number of changes to suggest, but I am not going to present them as recommendations now.

I do not ask you to accept any arbitrary thing. I ask you to appoint a committee of yourselves to co-operate with our department to devise a uniform system of accounts, records and cost systems in all institutions. We have prepared forms which I think will do it, which we will present to your committee in the way of suggestion. We have tried to devise forms which would bring before you the actual money cost, value of the daily consumption of supplies and materials passing through your hands. Your merchandise ledger of to-day does not give values but quantities. We want it so that anybody can walk in at any time and get a correct statement of purchases, distribution and costs. We want your records to provide you with detailed information about every feature of your work.

Facts are the best arguments to present to the Legislature in support of an estimate of appropriations required. I am firmly convinced that scientific budget-making for this State has now fairly begun, and will continue. I may not be permitted to carry it on, but even if I

pass on to private life it will not stop. I have some reason to know that in addition to the public officers whose duty it is to scrutinize expenditures, there are private bodies of citizens enlisting in the work of getting the most possible for the State. The coming Constitutional Convention will give consideration to this subject of budget-making, and I expect to see established a system that will require an accurate statement of actual cost as a basis for every appropriation of public funds. And it is my firm belief that when such a basis is established you will never have difficulty in getting adequate appropriations.

We have here a set of forms gathered from one institution. These do not begin to represent all there are. Most of them we do not disturb. Some we think should be discontinued. We present some new ones. We do not want to impose them upon you. We desire to present them as a suggestion. Therefore we ask the superintendents to co-operate with us in our effort to unify forms, to simplify the system, and to reduce the clerical work to the smallest volume possible, by appointing a committee to undertake this work with our department. (Applause.)

Dr. MABON: I move that the Chairman appoint a committee as suggested by Commissioner Delaney.

Dr. Mabon's motion was duly seconded.

The CHAIRMAN: Doctor, you have not suggested any number, and perhaps it would be well if the superintendents and others here would discuss this matter just a little and give us the benefit of their ideas on how many, and whether some of the stewards should be on that committee, before the number is fixed.

Dr. MABON: By all means some of the stewards should be on the committee, and from different parts of the State where the admission service is active and representing the rural districts. I would suggest a committee of three superintendents and three stewards.

Commissioner MAY: Is that too large a committee, Mr. Delaney?

Commissioner DELANEY: No; I think that is fine; just right.

The CHAIRMAN: The motion is made and seconded that a committee of three superintendents and three stewards be appointed to consult with the Commissioner of Efficiency and Economy with a view to revising the forms and system of accounts generally.

Dr. PILGRIM: I would move that the Auditor of the State Hospital Commission be added to that committee.

Dr. MABON: I accept that amendment.

Dr. Mabon's motion as amended was adopted by the conference.

The CHAIRMAN: If it is agreeable to the meeting here we would like to take a little time to select the committee.

The next on the program is the **Report of the Purchasing Committee**, by Dr. HOWARD, Chairman.

Dr. HOWARD: The general spirit of the work of the Purchasing Committee is that of the selecting of good, durable grades of goods for the several State hospitals at the best obtainable prices, and co-

operation with the hospitals in getting good deliveries and in keeping specifications up-to-date. In that connection there is much work in the adjustment of contracts, and we feel it advisable to advertise for the assistance of experts on leather, hair, tea, molasses and syrup, and advice relative to the quality of their goods. But a committee does not feel it a part of its work to adjust differences between hospitals and contractors or to act as a court in such matters. It feels that it is its duty to explain and help and do all it can to pour oil on the troubled waters of dispute or difference, but that the decision should be with the hospital receiving the goods. I make a particular point of that and bring it out with emphasis because if it does not please the hospitals that the committee should have that attitude it should be taken up and discussed fully. During the past year the particular matters that have been of considerable interest are the purchase of coal, beef and flour. At the last conference a discussion was had relative to the joint purchase of coal by all departments of the State and it was practically understood by all the hospitals what was to be undertaken and the necessity for that attempt. The specifications prepared by an engineer of high repute were advertised, and coal contracted for on the b. t. u. basis. Criticisms are now quite rife relative to the work of the chemist in determining the value of the coal delivered, and the committee is not prepared to say exactly what course will have to be pursued in connection therewith. It has seemed to some of the committee that it would not be possible for any good contractor to find fault with an analysis made by the Bureau of Mines, and so at its last meeting it suggested that the Bureau of Mines be called upon to make analyses, but a storm of criticism has since been received that should receive respectful and considerate attention from us, and so we have the matter under further advisement. Just as a personal opinion from the chairman of the committee, it is my opinion that the equipment at the Binghamton State Hospital for the analysis of coal can be so perfected that we can rest with assurance upon the analyses coming from that institution and that it is the best plan for the State hospitals to cling to, but using the Bureau of Mines to settle disputes.

In the matter of beef, at the last bidding the lowest bid was for nine months period in car lots. Incidentally it might be said that if beef is kept at thirty-two degrees in the refrigerators at the hospitals it is not going to deteriorate, if bought in car lots. This price for beef was considered to be extra good and fortunate for the hospitals, as it only averages a quarter of a cent a pound more than was paid for beef for the preceding nine months, and under present conditions you will all appreciate we are in good luck not to have to pay a greater amount of our much needed funds out for that commodity.

At the last bidding the flour averaged 80c. per barrel more than formerly, but it is a little consolation in that connection to know that it has increased in cost since that purchase was made so that it would have cost us \$10,000 more to-day than it did the day it was bought.

The committee, appreciating the lack of funds, has done what it could to reduce its own expenses and has succeeded to the extent of a little over \$1,000, nearly \$500 of that being traveling expenses and \$500 for temporary services for help in the office. The total amount during the past year contracted for by the committee has been \$2,078,-904.50 at a cost of one-sixth of one per cent, while the usual cost of joint purchases by corporations is at the rate of five per cent.

The CHAIRMAN: We will be glad to have the views of any of the superintendents on the matters referred to in the report of the Purchasing Committee, if you have any views which might be of interest to the members or the chairman of the committee.

Dr. HARRIS: I move the report be received and placed on file with the thanks of the conference.

Dr. Harris's motion was duly seconded and adopted.

The CHAIRMAN: The next thing in order will be the report of other committees. The first will be the report of the **Committee on Statistics and Forms**.

Dr. HUTCHINGS: The committee on statistics and forms was requested to prepare a form for the admission of patients for temporary observation in emergencies, as was provided for under the provisions of a law passed by the last Legislature. This law excludes cases of alcoholism and drunkenness and permits a Health Officer to commit to the hospital without formality any patient who, in his judgment, requires such treatment, for a period not exceeding ten days. The committee in making up this form attempted to cover all of the provisions of that law and prepared a rather long blank form which includes, in addition to what was actually required by the statute, other information which it was thought would be desirable. This form was sent out to different superintendents for criticism, and while the majority approved of it without much change, the suggestion came from several that it seemed to be longer than was necessary. The committee thereupon devised a shorter form and I shall present the two to the conference with the suggestion that the members approve of that one which seems to be most satisfactory. The first one you have all seen; I sent out one to each member of the conference. I will not read it, it has been slightly improved by suggestions received from other sources. The other form, the shorter one, I will read. (Reads.)

Dr. PILGRIM: I move that the second form be approved by the conference.

Dr. Pilgrim's motion was duly seconded.

The CHAIRMAN: The motion before the house is that the short form as first recommended by the committee be adopted.

The motion was carried.

Dr. HUTCHINGS: I might report further that the certificates which have been prepared by this committee upon the recommendation of the conference to be issued to medical appointees by the Commission and the physicians on the several staffs by the superintendents are

now ready for distribution. The larger one is intended to be issued to superintendents, medical inspectors and any other appointees of the State Hospital Commission. The smaller one is to be issued to assistant physicians and higher positions on the staff by the superintendents. These may be obtained from O. A. Quayle, of Albany, at the price of 90c. each, and the names will be engrossed for one dollar extra.

Dr. MABON: That certificate for superintendents is rather a difficult one; some were appointed by Boards of Managers, some were appointed by the old city department and taken over by the State, and others were appointed by the State Hospital Commission.

Dr. PILGRIM: It would be necessary to change the phraseology to cover each case.

The CHAIRMAN: Is there any other report to be made by any committee?

Dr. SOMERS: I think there is one matter I am not clear about adopted at the last conference. The committee was to get up certain cards and forms on which a record of paroled patients was to be kept, but we have never seen such forms or cards. We were directed to temporarily keep track of paroles on cards we were to devise ourselves. They were approved by the committee and conference.

Commissioner MAY: If the committee will give us those forms we will send them to Utica and have them printed.

The CHAIRMAN: Is there any other matter to bring before the conference before we adjourn?

Dr. HOWARD: Mr. Chairman. It is the wish of a number of the men in the conference and probably of all, that we express our thanks for this very interesting program that we have had to-day. It has been a wonderful conference, of benefit to us all, and I rise to voice the sentiment of us all in compliment and commendation thereof.

The CHAIRMAN: In closing, gentlemen, I would like to say just a word. I suppose you are all familiar with the fact that Mr. McGarr has taken up as a part of his duties the subject of after-care and will probably endeavor to organize something of a system which, we hope, there will be means to carry out, and I presume he would be very glad to have any suggestions at any time from any of the members here. While we have not accomplished much yet, he is studying on the matter. He is trying to get it into shape and hopes something can be done which will be of some benefit.

I might say, also, that of course you all know it was with great regret that the appropriations were not what the Commission worked to have them. We want to congratulate the superintendents and stewards on the cordial co-operation you have given in bringing about the economies which it was found necessary to make and the success of your efforts which have helped to meet a very trying and difficult situation. We feel that you have done exceptionally well and are to be congratulated. We do not believe that the people of this State nor

its representatives will deny to the Hospital Department proper appropriations for the future maintenance and care of the insane. It was a trying situation this last year, there was a good deal of confusion and conditions existed which probably will not exist again. In the effort to have proper appropriations made we are going to have the hearty co-operation of the Governor and his support, and I think that we shall succeed in having much better allowances in future—such allowances as will be adequate for your needs.

If there is no other business before the conference, I now declare it adjourned.

LEWIS M. FARRINGTON,
Secretary of the Conference.

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DR. HURD	INSPECTOR RYON	DR. WAGNER	DR. SMITH	DR. HOWARD	DR. POTTER
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TABLE OF CONTENTS

	Page
Frontispiece—New York State Hospital Commission and Superintendents of Hospitals.	
1. "The Care of the Insane Under State Boards of Control," by Dr. Thomas W. Salmon,	455
2. "Review of the History of Pellagra with the Report of a Case," by Dr. W. W. Wright,	471
Autopsy Findings in Dr. Wright's Case of Pellagra, by Dr. C. O. Cheney,	486
Pathological Changes in the Nervous System in Pellagra, by Dr. Charles B. Dunlap,	488
3. "Some Observations on Dementia Præcox," by Dr. Wal- ter L. Treadway,	496
4. "Psychological Feature of the Precipitating Causes in the Psychoses and its Relation to Art," by Dr. J. T. MacCurdy,	514
5. "The Intra-Spinal Treatment of Paresis," by Dr. George S. Amsden,	538
6. Minutes of Quarterly Conference, December, 1914,	552
Report of the Committee on Recommendations made by the Commissioner of Efficiency and Economy,	553
Discussion of Dr. Amsden's paper,	554
Remarks of Mr. Tibbitts representing the Combusto Company,	559
Address of Mr. A. L. Brockway, Architectural Adviser for the Department of Efficiency and Economy, with discussion,	559

Discussion of Dr. Salmon's paper,	564
Report of Committee on Legislation,	568
7. News of the Service during 1914,	572
Changes in the Personnel of the Medical Service,	572
New Hospital Features : Construction, Administration, Therapeutic Occupation, etc.,	576
Notable Occurrences : Injuries, Rescues, Special Capability,	582
Notes of Importance on Habeas Corpus Cases,	587
Individual Items,	589
8. Bibliography of the Physicians of the State Service,	592
9. Index to Volume VII,	601

THE CARE OF THE INSANE UNDER STATE BOARDS OF CONTROL.*

By THOMAS W. SALMON, M. D.,
Medical Director, National Committee for Mental Hygiene.

In no other medical or humanitarian work are such wide variations to be found in the different States as in the treatment of those suffering from mental diseases. Excellent illustrations can be seen in this country to-day of practically every kind of consideration and of every kind of neglect which it has been the lot of the insane to receive during the last three centuries.

There are States in which the insane are imprisoned in just such cells as those which aroused the compassion and indignation of Pinel and Tuke in the eighteenth century, and of Esquirol and Conolly in the nineteenth while, across the imaginary lines which separate such States from their neighbors, hospitals are to be found in which the insane are cared for with as much skill and tenderness as any other sick persons receive. I could place, side by side, the saddest extracts from the report of the English Committee which investigated the care of the insane in 1815 and parts of reports of studies made this year in three great States and you would be unable to detect any essential difference between them. Some of the States in which the insane are dragging out their lives to-day under conditions which were becoming intolerable a century ago are enlightened and prosperous American commonwealths. They spend large sums for charity and for the higher education of their citizens; medicine, surgery and nursing are as far advanced in their communities as anywhere in the world.

Many causes contribute to this remarkable inequality in the methods by which a most important duty is discharged but it depends chiefly upon the fact that the treatment of mental diseases is an enterprise in which the people generally have little direct share. There is probably no other

*This paper was read at a Quarterly Conference of State Hospital Superintendents and Managers with the State Hospital Commission at Albany, December 4, 1914, but data were added when it was submitted for publication, February 5, 1915.

enterprise carried on within a State which is such a monopoly as this. In many States the smaller political divisions are expressly forbidden to engage in it and everywhere by far the larger part of the burden is borne by the State itself. In some, the care of the insane is not only the largest medical enterprise carried on by the State but the largest enterprise of any kind—the appropriations for this purpose exceeding those for any other undertaking in which the State is engaged.

Thus we have the treatment of a group of diseases influenced more by laws and governmental machinery than by the general status of medicine or by popular ideals in humanity. Under such conditions, the form of administration and control of public institutions for the insane is a factor of the utmost importance. It may be said that our laws and machinery of government are but instruments by which the will of the people is executed but in this enterprise we have to deal with such widespread indifference on the part of the people and such lack of popular knowledge of the needs to be met that defective systems of law or of administration can come into existence or continue indefinitely without their defects becoming known to the people, who alone have power to change them.

The care of the insane became a State function in this country early in the last century. Although State care is still far from being complete, there are only thirteen States in which county or other local institutions for the insane exist. In nearly all the States many insane persons are still to be found in almshouses but this is due to recognized inadequacy of provisions for State care rather than to a definite policy of caring for the insane in this way. There are sixteen States in which there is but a single public institution for the insane. In such States, with but few exceptions, there are no State Boards which exercise supervisory or administrative functions but, where several institutions for the insane exist, it has been found desirable generally to provide some central agency to co-ordinate the work of the different institutions and to deal with those general phases of the care of the insane which are not properly the function of parochial boards of hospital trustees. This need has been met by

placing the care of the insane under either a Board created especially for that purpose, of commission or commissioner of charities and correction or by placing all the institutions of the State under a Board of Control which not only supervises their work but actually manages them in all but their least important functions. It is in this type of central control that we are especially interested for it has gradually spread until it is the form of management and supervision in eighteen States, including some of the most populous in the country.

Many advantages are claimed for this form of control and there is at the present time, or has been within the last few years, a movement for its adoption in each of the States having separate Boards of Insanity. These advantages can not be considered at this time for it is my purpose merely to state as briefly as possible some of the actual conditions in States in which the care of the insane is under State Boards of Control at the present time. It is with the fruits of the system, as far as they can be determined from examination of the data collected by the National Committee for Mental Hygiene, rather than with the advantages and disadvantages of the system itself that we are concerned.

It seems desirable, before reviewing some of these data, to examine the structure of the State Boards of Control now in existence. This form of supervision and management governs the care of the insane in the following States:

Arizona,	Kentucky,	Oregon,
Arkansas,	Minnesota,	Rhode Island,
Florida,	Nebraska,	South Dakota,
Illinois,	New Hampshire,	Washington,
Iowa,	North Dakota,	West Virginia,
Kansas,	Ohio,	Wisconsin.

In all but one of these States some members of the Boards of Control are appointed by the Governor. The exception is Florida in which the Board consists of the Governor and the eight other elected administrative State officials, all *ex-officio*. The Governor is a member, *ex-officio*, of the Boards in Arizona, Florida, New Hampshire and Oregon. Other State officials are members, *ex-officio*, in Arizona, Arkansas,

Florida, New Hampshire and Oregon. The members who are not *ex-officio* receive salaries in all States except Arkansas and New Hampshire, in which the members appointed by the Governor receive *per diem* compensation while the Boards are in session. This information is shown in detail in "Table I" appended.

Almost without exception, the only qualifications required for members of Boards of Control are those which relate to their political affiliations. One member of the Illinois Board must be qualified by experience to advise the Board in regard to the care and treatment of the insane. One member of the Wisconsin Board must be a woman. In some cases precedent requires one member to be a physician but such instances are rare.

In Illinois, Iowa, Minnesota, New Hampshire, Ohio, Rhode Island, South Dakota and Wisconsin there are other State boards or committees which have power to visit institutions for the insane but such auxiliary bodies are generally unable to influence very materially the standards of care.

It is convenient, in considering the care of the insane in these eighteen States, to divide them into two groups—those having three or more public institutions for the insane and those with less than this number. The States in the first group, in order of the number of patients under treatment in all their institutions are Illinois, Ohio, Wisconsin, Iowa, Minnesota, Kentucky, Kansas, Nebraska, Washington and West Virginia. The following notes give some information regarding standards of treatment in these States.

Illinois. In Illinois there are no local boards of managers so the care of the insane depends wholly upon the standards set by the Board of Administration. There has been a serious retrogression in the care of the insane in Illinois since this form of supervision was adopted four years ago. At the outset there were notable advances. Well-trained physicians were attracted from other States and many improvements in treatment and in nursing were inaugurated. All this is now changed and not only the central administration of the hospitals but in many cases their internal affairs are firmly in the hands of politicians. Competent

men of experience have been forced out of their places as superintendents and men have been appointed to these important positions who are wholly without training either in psychiatry or in hospital management. Under such conditions, it has been found difficult to induce the right kind of young men to enter this service and standards of medical care are constantly lowered. The same is true of the nursing service.

Illinois has one of the most defective commitment laws in the United States but, either through lack of influence or through failure to appreciate the need of changing the law, nothing has been done by the Board of Administration to abolish the plan of commitment by jury trial and to substitute such provisions as those for emergency commitment, voluntary admission of indigent patients, commitment for observation, etc., which have proved so successful in other States.

The insane are to be found in nearly all almshouses in Illinois under conditions which the State Charities Commission reports as almost intolerable. Patients are admitted to the State hospitals in accordance with a quota for each county which is established upon the basis of population without regard to the fact that the admission rate of mental diseases is influenced by many other factors.

Ohio. The status of the care of the insane in Ohio under the Board of Administration is indicated by the following resolution which was adopted by the Ohio Board of State Charities a few weeks ago:

"Resolved, That the Board of State Charities desires to express to the State Board of Administration its conviction that the State of Ohio is backward in its treatment of the insane; and that the facilities and equipment of its public institutions for the improvement and cure of insane wards of the State are inadequate and not abreast of modern ideas; and that a reform is necessary in the preliminary observation of newly-committed patients and their segregation until a full diagnosis of their cases can be made."

Thus we see the Board with the least authority more genuinely concerned regarding the condition of the insane than the Board to which the State has delegated great powers and responsibilities.

The overcrowding in the State hospitals is so great that

there is no room to care for patients in the detention quarters provided in many counties. In Cleveland it was necessary recently to send cases adjudged insane to the county jail as the only remaining place of confinement. These conditions were so serious that the Probate Judges' Association of Ohio appealed to Governor Cox in order that some action might be taken during the last session of the legislature. It is estimated by Dr. A. F. Shepherd of the State Board of Administration that \$4,000,000 would be required to put the hospitals for the insane in Ohio in proper condition. The insane are to be found in nearly all almshouses, in the usual conditions of misery and neglect.

The Ohio law requires that the application for commitment shall state that the alleged insane person is dangerous to the community if allowed at large. This association of mental disease with crime extends through the commitment law even to the provision requiring patients to be taken to the hospitals by sheriffs. The number of voluntary patients under treatment in each State hospital at one time is limited to five.

Wisconsin. In Wisconsin the unique system of caring for the insane in county asylums under State supervision makes comparison with other States difficult. The State Board of Control exercises its supervision over these county asylums from the fact that the State pays practically half the cost of maintenance. This system has attracted wide attention and has some great advantages but, under the State Board of Control, it has been allowed to play a part in the care of the insane in the State which was never intended by those who created it. In theory, first admission must be made to one of the two State hospitals, transfer to the county asylums being made only when it appears that further treatment in a State hospital would not be more advantageous than care in a county asylum. On January 1, 1905, 70.7 per cent of all patients were in the county asylums and 29.3 per cent in the State hospitals.* By June 30, 1912, the proportion in the State hospitals had decreased to 26.5 per cent. Thus the insane patients of Wisconsin are being slowly collected in the county asylums notwith-

* Including the Milwaukee County Hospital.

standing growing interest elsewhere in treatment. In addition, there is an increasing tendency on the part of County Judges to make original commitments to county asylums. Dr. Adin Sherman, superintendent, has this to say of the practice of transferring an increasing number to the County Asylums :*

"This large number reduces the average residence of each patient in the hospital to a point considerably below that which is necessary to obtain the best results in treatment. The limited capacity of the institution renders it necessary to transfer many patients to county asylums before it has been thoroughly demonstrated that the disease is chronic and that they can be benefited by further active treatment, and others whose condition renders them unsuitable for county asylum care."

Although the State Board of Control in Wisconsin is composed of public officials of high character, failure to appreciate the importance of the scientific and humanitarian phases of the care of the insane is shown by the fact that the power of inspection of county institutions has been used almost exclusively to control material conditions. The necessity of doing more to improve the medical and nursing services of these institutions has been called to the attention of the Board of Control several times, but an illustration of the failure of the Board to appreciate the importance of these suggestions is afforded by the appointments made two years ago when the legislature authorized two inspectors. One of those appointed was a State senator who had failed of re-election and the other was a retired clergyman, although the opportunity was presented of bringing county care up to a much higher level by appointing a well-trained physician to one of these positions.

Iowa. This State has often been pointed out as the best example of the advantages of central control. As in all other States having this form of administration, there are no local boards of trustees, power being concentrated in the Board of Control.

Under this Board, 878 or 17 per cent of the insane persons receiving public care in Iowa at the end of the last biennial period were in the county almshouses. They are

* Report of the Wisconsin Board of Control for the biennial period ending June 30, 1912, page 30.

cared for in most cases in separate departments but facilities for treatment and diagnosis are practically absent and their condition differs little from that of the insane cared for elsewhere in these unsuitable institutions.

Washington. The State Board of Control in Washington has existed for twelve years and the care of the insane fairly represents the fruits of this system. At the present time it is openly regarded as a perfectly legitimate field for practical politics. Within the last few months the superintendents of both the State hospitals have been removed, in each case after a number of years of efficient service without the shadow of an excuse except that their positions were needed for political reasons.

The commitment law in Washington contains no provision for voluntary admission and no provision for the commitment of patients to private institutions, thus making the detention of those in the existing small private institution entirely without authority and practically prohibiting the establishment of others. There is no provision for paroling patients pending their discharge and no provision for the qualifications of superintendents. The physician appointed to succeed one of the superintendents who was removed recently is a surgeon who has had no experience in psychiatry or in the management of a hospital for the insane.

West Virginia. Dr. Carlos F. MacDonald recently made a study of the care of the insane in West Virginia at the request of the Governor. His report showed that, under the State Board of Control, there had been little progress made in the care of the insane and he considered conditions so unsatisfactory that a radical change was recommended. In accordance with his suggestions, steps are being taken in that State to provide a State Commissioner of Lunacy and to remove the care of the insane from the control of the board which has shown its inability to discharge this responsibility satisfactorily.

Other States. The National Committee for Mental Hygiene has no information which would justify a general expression of opinion as to the care of the insane in Kentucky, Minnesota, Kansas and Nebraska. A few ob-

servations regarding the care of the insane in some of the States having only one institution for the insane under a Board of Control may be of interest.

The Board of Control of New Hampshire, composed of the Governor, the State Treasurer, the Purchasing Agent and two appointed members, recently removed Dr. Charles P. Bancroft from his position as Superintendent of the State hospital and tried to appoint a State Senator, known as the author of the bill creating a board of control, in his place. As is well known, Dr. Bancroft is one of the ablest superintendents in this country and during his long term as superintendent the hospital became a first class institution in every respect. The State Board of Charities and Corrections adopted the following resolution regarding this action on the part of the Board of Control :

"In view of the recent action of the Governor and two members of the State Board of Control in requesting the resignation of Dr. Charles P. Bancroft of the State Hospital for the Care of the Insane, the State Board of Charities and Corrections under whose supervision the various institutions of the State are placed, wish to express to the people of New Hampshire their continued and complete confidence in Dr. Bancroft as a man, as an executive, and as the head of one of the most important institutions of the State and to express, as their opinion, that no change should be made in so important a position without well substantial charges—which have not in this case been made."

Great indignation was aroused in the State and the new Governor has appointed a commission to investigate the whole matter. No charges were brought against Dr. Bancroft, the Board of Control asserting that it acted simply because it has the power to do so.

In Rhode Island, a State Board of Control and Supply was established three years ago, retaining the Board of State Charities and Corrections. So unsatisfactory has the dual system become that a strong movement for a separate Board of Insanity has originated. The Rhode Island State Medical Society expressed its opinion of the care of the insane under a State Board of Control in the following resolution :

" And whereas by effect of an act of the General Assembly January session, 1912, (see Chapter 825, Laws of 1912), we have

in this State the anomaly of two State Boards, viz.: the Board of State Charities and Corrections and the Board of Control and Supply, with ill-defined duties as relates to each other, directing the State Hospital for the Insane and other institutions in Cranston, Rhode Island.

And whereas it seems highly imminent that legislative action will be taken in the near future to obviate the said anomalous condition, thereby possibly involving changes in the organization of the institutions themselves.

Be it therefore resolved by the Rhode Island Medical Society that the sentiment which actuated the said law of 1897, and which was inspired by its membership at that time, has to-day our unqualified endorsement and we herein record our conviction that in any re-organization, or proposed re-organization, of the public institutions, there should be a strict observance of the spirit and the letter of the said law of 1897; that the State Hospital for the Insane should be maintained and administered as a separate institution, and that any administrative change which contemplates any closer relationship of the State Hospital for the Insane to other institutions than that prescribed by the said law of 1897, shall be regarded by the Rhode Island Medical Society as inimicable to the interests of the patients of the State Hospital for the Insane, and as a reversion to a form of organization which was wisely abolished by the said law of 1897; and as contrary to present day enlightenment, and to the spirit of philanthropy which should pervade the provisions which the State makes for the insane. "

In Florida, we have the single instance in this country of a lay superintendent in charge of the State hospital for the insane.

The Board which has supervision over all State institutions in Arkansas recently removed the superintendent, Dr. James L. Greene, who was formerly a member of the Illinois Board of Administration and especially well qualified for his place. Dr. Greene had resisted a number of political demands and the final rupture with the Board of Trustees came when he declined to provide positions for various relatives of politicians and protested against gross irregularities in the expenditure of money for improvements at the hospital. The secretary of the State Board of Health was appointed in his place.

The foregoing notes constitute a catalogue of serious defects but it would be very unfair to leave the impression that these defects extend throughout the care of the insane in the States mentioned. On the contrary, there are public

hospitals in some of these States which, in all that makes for scientific and humane treatment, are equal to any in this country. To some of these States we owe important advances in the study of psychiatry and in the treatment of mental diseases. It is only in the rarest cases, however, that such advances have been due in any degree to existing administrative bodies. Under Boards of Control, politics influence the care of the sick to a degree unknown under different types of supervision and the scientific and humane aspects of the work undertaken are generally subordinated to doubtful administrative advantages. With hardly an exception, these Boards of Control have not endeavored to secure better commitment laws, to lead public sentiment so that higher standards of treatment will be demanded or to deal with the great problems of mental disease in any except their narrowest institutional aspects. There has been striking absence of evidences of any feeling of personal responsibility in these matters; indeed many members of these boards would doubtless unhesitatingly state that their duties do not involve such considerations. What the results would have been if efficient and fearless local Boards of Managers had been retained when these States created Boards of Control can not be stated. It is an essential part of the policy which places the care of the insane under this form of administration that there shall be no "division of responsibility" and, seemingly, there is no place in such a scheme for bodies which are as much interested in the personal welfare of these wards of the State as they are in governmental "efficiency" and, which, moreover, are directly accountable to their neighbors—the friends and relatives of patients.

It is interesting to compare some of the conditions mentioned with those existing in States in which the care of the insane is entrusted to Boards created for that special purpose. In these States—California, Maryland, Massachusetts and New York—it can be said truly that the care of the insane reaches its highest level. Reception hospitals in connection with State hospitals, training schools for nurses, non-political appointment of all those engaged in the work of hospitals, encouragement of scientific research and steady

progress in treatment are the rule. The commitment laws in these States are framed with the purpose of rendering admission to hospitals as easy as possible in order that the greatest possible number may benefit by the treatment afforded. No insane persons are to be found in the almshouses and especial safeguards are thrown around persons suffering from mental diseases even in the short period while their commitment is pending. In consequence, the ratio of admissions to population is generally much higher than in other States, the best of evidence that the people have confidence in these institutions and seek them readily.

It has been impossible, within the limits of such a paper as this, to do more than to outline some of the most important conditions which seem to accompany caring for the insane under State Boards of Control but it is believed that enough information has been presented to make it clear that, if those States which have achieved such splendid results under a different system abandon it in favor of Boards of Control, such action will be prompted by other motives than solicitude for the welfare of their insane poor.

STATE BOARDS OF CONTROL.

I. *Name, Powers, Method of Appointment and Compensation.*

<i>Arizona.</i>		"The Board of Control."
Powers :	Management of all State charitable and correctional institutions.	
Appointment :	Consists of the Governor and the State Auditor, ex-officio, and one other member appointed by the Governor. The appointed member is the secretary.	
Compensation :	The member appointed by the Governor receives \$2,400 per annum.	
<i>Arkansas.</i>		"The Board of Trustees."
Powers :	Management of all State charitable institutions.	
Appointment :	Consists of the State Treasurer, ex-officio, and one member from each Congressional district, appointed by the Governor.	
Compensation :	The members appointed by the Governor receive per diem allowance while the Board is in session.	

- Florida.* "The Board of Commissioners of State Institutions."
- Powers: Supervision of all State institutions and management of the single State hospital for the insane.
- Appointment: Consists of the Governor and the eight other elected administrative State officers.
- Compensation: No member receives compensation.
- Illinois.* "The Board of Administration" (Note 1).
- Powers: Management of all State charitable institutions and inspection of all places in which the insane are detained.
- Appointment: Five members, all appointed by the Governor. One member must be qualified by experience to advise the Board in regard to the care and treatment of the insane.
- Compensation: Each member receives \$6,000 per annum.
- Iowa.* "The Board of Control of State Institutions" (Note 2).
- Powers: Management of all State charitable and correctional institutions and inspection of county and private hospitals for the insane.
- Appointment: Three members, all appointed by the Governor.
- Compensation: Each member receives \$3,000 per annum.
- Kansas.* "The Board of Control of State Charitable Institutions."
- Powers: Management of all State charitable institutions, inspection of all places in which the insane are detained and administration of the laws relating to the insane.
- Appointment: Three members, all appointed by the Governor.
- Compensation: Each member receives \$2,500 per annum.
- Kentucky.* "State Board of Control for Charitable Institutions."
- Powers: Management of all State charitable institutions.
- Appointment: Four members, all appointed by the Governor.
- Compensation: Each member receives \$2,500 per annum.

<i>Minnesota.</i>	"The State Board of Control" (Note 3).
Powers:	Management of all State charitable and correctional institutions.
Appointment:	Three members, all appointed by the Governor.
Compensation:	Each member receives \$3,500 per annum.
<i>Nebraska.</i>	"The Board of Commissioners of State Institutions."
Powers:	Management of all State charitable and correctional institutions.
Appointment:	Three members, all appointed by the Governor.
Compensation:	Each member receives \$3,000 per annum.
<i>New Hampshire.</i>	"The Board of Control" (Note 4).
Powers:	Management of all State charitable institutions.
Appointment:	The Governor, State Treasurer and Purchasing Agent, ex-officio, and two members appointed by the Governor.
Compensation:	The Purchasing Agent receives a salary, the other members receive per diem allowances.
<i>North Dakota.</i>	"The Board of Control of State Institutions."
Powers:	Management of all charitable and correctional institutions except the Soldiers' Home and investigation of methods of caring for "insane, delinquent and criminal classes."
Appointment:	Three members, all appointed by the Governor.
Compensation:	Each member receives \$3,000 per annum.
<i>Ohio.</i>	"The Ohio Board of Administration."
Powers:	Management of all State charitable and correctional institutions, except the Soldiers' and Sailors' Orphans Home.
Appointment:	Four members, all appointed by the Governor.
Compensation:	Each member receives \$5,000 per annum.
<i>Oregon.</i>	"The State Board of Control."
Powers:	Management of all State charitable and correctional institutions.
Appointment:	Consists of the Governor and two other members, all ex-officio.
Compensation:	No member receives compensation.

- Rhode Island.* "The Board of Control and Supply" (Note 5).
- Powers: Purchase of supplies, control of labor of inmates and construction and repairs in all the State charitable and correctional institutions.
- Appointment: Five members, all appointed by the Governor.
- Compensation: The Chairman and the Secretary each receive \$3,000 per annum, the other members \$2,000 each.
- South Dakota.* "State Board of Charities and Correction" (Note 6).
- Powers: Management of all State charitable and correctional institutions.
- Appointment: Five members, all appointed by the Governor.
- Compensation: Each member receives \$1,500 per annum.
- Washington.* "The State Board of Control."
- Powers: Management of all State charitable and correctional institutions and supervision of the State university, college and normal schools.
- Appointment: Three member, all appointed by the Governor.
- Compensation: Each member receives \$3,000 per annum.
- West Virginia.* "The State Board of Control."
- Powers: Management of all State charitable and correctional institutions.
- Appointment: Three members, all appointed by the Governor.
- Compensation: Each member receives \$5,000 per annum.
- Wisconsin.* "The State Board of Control" (Note 7).
- Powers: Management of all State charitable and correctional institutions, investigation of the care of the insane and supervision of the county asylums for the insane.
- Appointment: Five members, one of whom must be a woman, all appointed by the Governor.
- Compensation: Each member receives \$3,000 per annum.

NOTES.

1. In Illinois there is a Charities Commission which has power to inspect all charitable institutions.
2. In Iowa there is a Visiting Committee which has power to inspect all hospitals for the insane, especially with regard to treatment.
3. In Minnesota there is a State Board of Visitors for Public Institutions which has power to inspect all State, county and municipal charitable and correctional institutions.
4. In New Hampshire there is a State Board of Charities and Corrections which has power to inspect all county charitable and correctional institutions but which has no duties in regard to State Hospital for the Insane.
5. In Rhode Island there is a Board of State Charities and Corrections which must visit all town asylums and other places where the insane are kept to see that none is improperly confined.
6. In South Dakota there is a Visiting Committee which has power to inspect all charitable and correctional institutions.
7. In Wisconsin there is a Visiting Committee, consisting of two members of the Senate and four members of the Assembly, which has power to inspect all State charitable and correctional institutions.

II. *Population of States with Boards of Control; number of public institutions for the insane (1915); number of patients in these institutions according to U. S. Census (January 1, 1910).**

State	Population	Institutions		Number of Insane in Institutions
		State	Local	
Arizona.....	204,354	1	0	337
Arkansas.....	1,574,449	1	0	1,092
Florida.....	752,619	1	0	849
Illinois.....	5,638,591	9	0	12,763
Iowa.....	2,224,771	4	*	4,767
Kansas.....	1,690,949	4	0	2,812
Kentucky.....	2,289,905	3	0	3,477
Minnesota.....	2,075,708	5	0	4,737
Nebraska.....	1,192,214	3	0	1,990
New Hampshire....	430,572	1	0	904
North Dakota.....	577,056	1	0	628
Ohio.....	4,767,121	7	0	10,372
Oregon.....	672,765	2	0	1,565
Rhode Island.....	542,610	1	0	1,243
South Dakota.....	583,888	1	0	804
Washington.....	1,141,990	3	0	1,987
West Virginia.....	1,221,119	3	0	1,722
Wisconsin.....	2,333,860	3	35	6,436

* On January 1, 1910, insane patients were enumerated by the U. S. Census in 26 county almshouses permitted by the Board of Control to care for the insane.

REVIEW OF THE HISTORY OF PELLAGRA WITH THE REPORT OF A CASE.*

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Before entering on a clinical description of this case, I thought it might be well to review historically the subject of pellagra, and, rather briefly, to outline the more modern conceptions of the disease.

In the year 1735, the disease is said to have been endemic in Spain. In the year 1762 it was described by Casal, who named it "Mal de la rosa" (Osler).

In 1750, according to Rossi, it was observed in Italy, and in 1771 was described by Frapolli, who gave it the name of pellagra, meaning rough skin. By 1800 it had spread over Northern Italy, France, and Roumania.

In the United States it was first observed in Illinois in 1812; in South Carolina in 1828, and in New York and Massachusetts about 1860. Since that time it has been found in a number of other States.

In regard to the distribution, Roberts states that 90 per cent of the cases of three continents occur between the average parallels of 30 and 45 degrees north latitude, a belt about one thousand miles wide (in America the southern boundary extends to the eighth parallel). In other words, the northern boundary would be on a line extending through Roumania, Northern Italy and Southern France; in the United States on a line extending along the northern border of New York State to Salem, Oregon. The southern boundary would be on a line passing from Cairo to the southern border of Morocco, then through the northern part of South America.

Some idea of the extent of the disease may be gained from the following statistics: Lavinder, in 1912, estimated that there were 30,000 cases of pellagra in the United States during the five preceding years; and Niles, at that time,

*This paper and the discussion which followed, formed a part of the programme of the meeting of the Ward's Island Psychiatric Society, October 19, 1914.

stated that the disease had been found in thirty-five states. In Italy it is estimated that there are now approximately 100,000 cases (Osler). In Servia, Bulgaria and Roumania, according to Triller, the number of pellagrins, which was 7,000 in 1894-95, had by the year 1906 increased to 30,000. A later estimate by Osler places the number in Roumania alone at 50,000.

SOME OF THE THEORIES IN REGARD TO THE ETIOLOGY OF PELLAGRA.

In various provinces of Italy it was observed that within a few years after the introduction of maize, pellagra developed. The observation led to the maize, or corn, theory which was advanced by Marzari in 1804, and underwent various modifications by numerous investigators. At first it was thought that maize, having a low nutritive value, favored the development of pellagra. After the subject of bacteriology became general, certain investigators concluded that, as maize was a good culture medium, pellagra was caused by the absorption of certain toxins formed by the action of the colon and other bacilli. Other associated corn theories were: the photo-dynamic theory and the doctrine of photo-sensitization, *i. e.*, pellagra was supposed to be caused by a substance derived from corn, which sensitized the skin to sunlight. The maize theory probably was given greatest prominence by the studies and experiments of Lombroso, who tried to establish a relationship between pellagra and spoiled maize. By the aid of the chemist Erba, a substance called pellagrozein, which was found experimentally to show certain toxic properties, was obtained from the alcoholic extract.

Although the corn theory has generally been regarded as doubtful, Nitzescu of Bucharest, in a recent article, has called attention to the possibility of early serodiagnosis of pellagra by the presence of protective ferments against maize albumen—zeinolytic ferments. By the use of the Aberhalden method, he claims that he has been able to show the presence of otherwise latent pellagra in a case who manifested only nervous symptoms. But in regard to the find-

ings of Nitzescu, Morse says: "Such work in the present state of the technique is of the most doubtful value."

Having considered the theories of indirect action of micro-organisms, it may now be well to consider rather briefly the theory of the direct action, or the infection theory. In this connection it may be said that at various times some members of each of the groups of bacteria, molds and protozoa have been considered as the cause of pellagra.

The first to receive attention was the bacterium *maidis*; later, certain molds found on spoiled maize and in the feces of pellagra cases were believed to be the cause of the disease.

The chief advocates of the protozoon theory were: Young, who claimed it was due to an amoeba; Alessandrini, who thought it was caused by filaria; and Sambon, who attributed the cause to protozoa, which he believed were transferred to man by the bite of the fly of the genus *simulium* (buffalo gnat, sand fly). Although the claims of Sambon in regard to the agency of the *simulium* have been shown by later investigators to be incorrect, yet it seems he should be given credit, at least, for calling attention to a definite line of research.

Roberts, reasoning by analogy, has tried to show that the mosquito is responsible for the transmission of this disease, and to prove his assertion, says: "Like malaria and filariasis, pellagra is chiefly rural. Rome escapes malaria, and yet in the marshes without the city the disease rages. Bucharest, Milan, and Atlanta escape pellagra, but in the regions round about, the disease persists. Even in large cities sporadic cases of malaria and pellagra develop; they usually occur on the outskirts where the drainage is poor and filth and sewage abound." Again he refers to the season, and says that pellagra may develop any time from spring to fall.

Although the theories of both Sambon and Roberts are disputed by more careful investigators, whom I shall presently quote, yet this may be said of their work, they have pointed out the fact that pellagra occurs chiefly in areas where sanitary conditions are poor.

The most complete work in regard to the epidemiology of pellagra has, I think, been done during the last two years by Drs. Siler, Garrison and MacNeal of the Thompson-McFadden Commission, who have made an intensive study of the disease in Spartansburg County, S. C. Their plan has been to investigate the occupations, surroundings, living conditions, and dietary of the people in a limited territory in which pellagra is found, in order to determine the relationship existing between these conditions and the spread of the disease. References to some of their earlier reports may be of value. In regard to the economic conditions, it is said that in 83 per cent of the cases, the conditions were poor, while in 17 per cent they were good, but of the 83 per cent only 13 per cent were in a condition of poverty.

The general health conditions in adult life were good in 62 per cent of the cases, while 25 per cent gave a history of gastric disturbances or of chronic disease. In general, the methods of disposal of excreta were insanitary.

Articles of diet: Corn products were used, either daily or habitually, in 84 per cent of the rural cases, in 75 per cent of the urban cases, and in 72 per cent of mill village cases where the disease is most prevalent; eggs were used, either daily or habitually, by 100 per cent of the urban cases, by 75 per cent of the mill village cases, and by 53 per cent of the rural cases, while fresh vegetables were used by 96 per cent of the mill village cases. Fresh meat was used by 66 per cent of urban cases, by 36 per cent of the mill village cases, and by 30 per cent of the rural cases.

These facts tend to disprove the statements, so frequently made, that the increase of pellagra bears a definite relationship to the increased consumption of maize.

Without going much into details, I wish to mention some of the observations and conclusions of the above mentioned Commission given in a recent report.

"1. The large foci of pellagra in Spartansburg County were found in and near the large centers of population, and particularly in the cotton-mill villages.

2. Children under the age of 2, adolescents for about

five years following puberty and adult males in the active period of life were least frequently affected by pellagra. On the other hand, women from 20 to 44 years of age, old persons of both sexes and children from 2 to 10 years of age were most frequently affected. (Between the ages of 20 and 44, women are nine times as frequently affected as men.)

3. No definite connection between occupation and the occurrence of pellagra has been found, although the high pellagra morbidity in the women and children points to the home as the place in which the disease is usually contracted.

4. In the group of incident cases most thoroughly studied, evidence of close association with a pre-existing case was disclosed in more than 80 per cent.

5. A house to house canvass of the homes of over 5,000 people, living in six endemic foci of pellagra, failed to disclose any definite relation of the disease to any element of the dietary.

6. In these six villages, new cases of pellagra originated almost exclusively in a house in which a pre-existing pellagrino was living, or next door to such a house, suggesting that the disease had spread from old cases as centers.

7. So far as we have observed, pellagra has spread most rapidly in districts where insanitary methods of sewage disposal have been in use.

8. Additional evidence has been obtained to support the conclusion that flies of the genus *simulium* have nothing to do with pellagra.

9. The studies of the blood have shown a lymphocytosis in most cases, but have not disclosed any constant abnormality characteristic of pellagra.

10. There is no evidence of inheritance of pellagra.

11. Animal inoculations and the experimental study of intestinal bacteria have not yielded conclusive results."

In this connection it may be said that the members of the Commission and various other groups of investigators have attempted to transmit the disease to monkeys by inoculating them with pellagrous material, such as preparations of

feces, sputum, cerebro-spinal fluid, and ground organs. These and spoiled corn-meal were also fed to the monkeys. In all, 103 experiments were performed by Lavinder, Francis, Grimm, and Lorenz, but in only one case, one of the monkeys which received an intra-spinal injection of spinal fluid, was there a reaction suggesting pellagra.

In regard to the possibility of the transmission of the disease by blood-sucking insects, the Commission is inclined to look upon those insects most intimately domiciled with man, such as the louse, flea, and bed-bug as agents, rather than winged blood-sucking insects. But Jennings and King of the Bureau of Entomology, Washington, D. C., working in the same territory, arrived at quite different conclusions. Among other insects, they exclude the louse, flea, and bed-bug, because of scarcity, nature of biting habits, etc., and look upon the house fly and the stable fly as the most probable agents in the transmission of the malady. The wandering habits of the stable fly, they think, may account for the occurrence of sporadic cases of pellagra.

Thus far, I have referred to the work of recent investigators who look upon pellagra as a communicable disease, but our review would not be complete without some reference to those who look upon the disease as the result of chemical and nutritional changes. Alessandrini and Scala, in a recent monograph, have promulgated the theory that pellagra is caused by the presence, in drinking water, of silica in colloidal state. After performing a large number of experiments on animals which developed lesions resembling pellagra, when given drinking water containing colloidal silica and colloidal aluminium hydroxid, they conclude that colloidal silica displays a strong affinity for the chloride of sodium, which is retained in the tissues. To produce this effect, the colloidal silica is supposed to act like an enzyme combining with the salt, which it then transfers to the protein molecule. Within this protein compound thus formed, hydrolytic action takes place, giving rise to a new protein molecule containing an HCl group. As this compound is very unstable the hydrochloric

acid at once splits off, thus producing an acidosis. For the treatment, therefore, an alkali would naturally be used. On this theory they gave daily injections into the gluteal muscles of 1 c.c. of a 10 per cent solution of sodium citrate.

Meyer and Voegtlin arrive at the same conclusion in regard to the toxic effects of aluminium salts on animals, but believe that further studies in regard to nutrition should be made in pellagra, since it is very difficult to decide at present whether these aluminium salts have any injurious effect on man in the quantities taken up with the food. They think there is often a deficiency in the diet in certain amino-acids essential for growth and maintenance, and also a deficiency in vitamins.

This brings us to the consideration of another hypothesis—that advanced by Funk and published under the title of “*Die Vitamine ihre Bedeutung für die Physiologie und Pathologie.*” According to his idea, pellagra, scorbutus, and beriberi are due to somewhat similar causes, viz., a deficiency in certain vitamins in the food, such deficiency being often brought about by the almost exclusive use of certain articles of diet. He upholds the maize theory in part, and says: “Pellagra appears and disappears with the cultivation of maize. In Egypt, the cultivation of maize was introduced in 1840; in 1847 the first case of pellagra was observed. In Spain, pellagra was prevalent in the last two centuries, and it appeared after the introduction of maize.” Again he says: “The whole history of this disease shows regularly an increase and a disappearance of pellagra parallel with the maize culture.” He explains, however, that it is not the consumption of maize alone that necessarily leads to pellagra; maize is a harmless diet when taken with other foods rich in vitamins, such as fruit, meat, and milk; and that it is not alone the kind of nourishment which causes the disease, but its preparation as well. In this connection he speaks of Barlow’s disease being produced by the excessive boiling of milk, and of beriberi and scorbutus being produced by the excessive polishing of rice and corn. In the latter case, he thinks that the vitamins,

which are present in a single layer only, the aleuron layer, are removed in the process of polishing.

To further show the similarity of these diseases, he says: "The avitaminoses show many symptoms in common. They all present degenerative processes in the nervous system, loss of weight, similar gastro-intestinal symptoms, atrophy of muscles, edema, indicanuria, hemeralopia. A part of the beriberi cases show erythema of the skin. In pellagra we find many scorbutic changes, such as stomatitis, gingivitis, with hemorrhages, swelling, ulcerations, petechiæ and ecchymoses of the skin. In many pellagra cases friability of bones, fractures of ribs and of the long bones have been found (Lombroso); this is, as is well known, a characteristic symptom of scorbutus." Again: "The very marked, often magic effect of a change of diet in scorbutus and pellagra is sufficiently well known, and is one of the most striking characteristics of this group of diseases."

As an argument against the theory that pellagra is due to an infection, he says: "In the central nervous system we never find inflammatory changes, we never see perivascular infiltration, but only degenerative changes in nerve cells and nerve fibres."

His conclusions are, that further knowledge in regard to the etiology of pellagra can best be obtained by a more thorough study of the dietary of the cases. As to prophylaxis, he thinks that one of the chief things to do is to increase the cultivation of potatoes—"cheap potatoes, with cheap meat and fruit are qualified to solve the pellagra question."

Summed up briefly, then, chiefly two views in regard to the etiology of pellagra have to be considered: one, that it is due to some micro-organism not yet isolated; the other, that it is the result of certain nutritional changes.

While the vitamin theory of Funk has much to recommend it, it is difficult as yet to harmonize it with the results of the careful investigation of the Thompson-McFadden Commission. In the large number of cases which they observed, more of the urban and rural cases ate maize than

did those of the mill villages, where the disease was most prevalent; moreover, while only a small proportion of the people ate fresh meat, 100 per cent of the urban cases and 75 per cent of the mill village cases ate eggs daily or habitually, and 96 per cent of the mill village cases ate fresh vegetables. The fact that a considerable number of investigators reported cases whose diet never contained maize does, of course, not affect the vitamin theory but only the maize theory. In regard to the preparation of the food upon which Funk lays stress, we have no data.

While the above results of the Thompson-McFadden Commission may be adduced as arguments against the vitamin theory, and as a result would speak in favor of the infection theory, it would seem, on the other hand, not admissible to use in support of this latter, the fact that in their investigation 80 per cent of the cases had been in close association with previous cases, unless it can be shown that this is true, in spite of the fact that the living conditions were different. It certainly is worthy of note that rarely hospital attendants who take care of pellagra cases have contracted the disease, and that, as Funk states, pellagrous wet nurses in Milan have never been known to infect the nursing children.

From all this, it is evident that a satisfactory solution of the etiology of pellagra has not yet been reached.

SYMPTOMATOGRAPHY, CLASSIFICATION AND TREATMENT OF PELLAGRA.

The disease usually appears during the spring, summer, and autumn months.

Types. Many clinical types have been described in the literature, the adjective describing the type usually referring to some particular manifestation of the disease, but for ordinary descriptive purposes those terms which refer to the acuteness or chronicity of the disease are seemingly adequate. Two other terms, though, which have come into quite general use should be mentioned, viz., the so-called *typhoid pellagra* and *pellagra sine pellagra* (pellagra without skin lesions). In regard to the occurrence of the latter type,

there seems to be a diversity of opinion among pellagrolgists. Some assert that a mild skin lesion is always present, but, in classes such as the insane, it may appear and disappear without being observed. Others, such as Procopiu and Strambio, believe that dyspepsias and gastrolgias may occur without their true nature being recognized. However, they think that if these disorders occur in the spring and bear some relationship to the dietary, one has a right to suspect pellagra of being the cause. Furthermore, they point to the fact that digestive disorders often persist for a long time after other symptoms have disappeared.

Typhoid pellagra will be considered under another heading.

Symptoms. Among the earliest symptoms of the disease are disturbances of the alimentary tract. The mucosa of the mouth becomes red and congested, ulcerations and denuded surfaces are seen, the mouth feels hot and the sense of taste is impaired; anorexia, nausea, vomiting and dyspeptic symptoms are common. There may be diarrhea or the bowels may be constipated. The stools may contain blood or serum. In the female, ulcers may be found in the vulva or in the vagina. In the male they are sometimes seen on the prepuce. Stannus says that the first symptoms may be a "Rhagades-like condition at the mucocutaneous borders of the angle of the mouth, a similar condition at the free margin of the prepuce, and a curious glossitis which denudes the tongue of epithelium and renders it shining and bright; next the skin eruption appears." The skin lesions are bilaterally symmetrical and sharply defined as a rule. The most common sites of the dermatitis are the face, neck, sternum, forearms, and the dorsal surfaces of the hands and feet. Less commonly lesions appear on the elbows, shoulders, knees, shins, scrumtum or vulva, and about the anus. The first sign, an erythema, resembling sun burn, usually appears on the backs of the hands. The palms may then show involvement, the process extending to the wrists, but confining itself to the lower third of the forearms. Thus is formed the so-called *glove* or *gauntlet* of pellagra. When the elbows are involved there may be a downward extension

of the erythematous zone. As the disease progresses the skin becomes dry, wrinkled, dark or tan color, and desquamates, fissures (inter digitos) and occasionally ulcers may appear. After drying and desquamating, the skin may have a deep red color. Repeated attacks may cause the skin to become indurated, thickened, and quite dark in color, sometimes being described as *bronzed-brown*, again as *blackish*, depending upon the locality of the observer. Exfoliation takes place in quite thick lamellae and sometimes ecchymotic spots appear (Marie); the nails become brittle, and in this connection it may be mentioned also that the bones become fragile.

Blood. A moderate secondary anemia is said to be quite constant (Babcock), and there is a lymphocytosis in about 75 per cent of the cases.

Nervous symptoms. General malais, headache, and vertigo are common, but burning sensations of the hands and feet are among the earliest and most constant of the nervous symptoms; sometimes, though, there are sensations of cold instead of heat. In other parts of the body there may be itching, pricking, neuralgic pains, and tenderness over the nerve trunks. Paralysis of sphincters and loss of leg reflexes may occur, or there may be spastic conditions.

Mental symptoms. The quite common occurrence of pellagra among the insane in the State hospitals in certain sections of this country is well known, but it is not my purpose here to discuss psychoses which are merely associated with mental symptoms of pellagra. Instead I shall refer to those types of mental disorder which are quite clearly the result of this disease. Often one observes in these cases a certain apathy, lack of spontaneity, and a rather mask-like expression, which might indicate a moderate degree of depression or even dementia, but when questioned they answer promptly and show no disorder in the stream of thought and no clouding of consciousness. Rossi describes two types of reaction: one a depressed type which, he claims, is somewhat different from the depressed type form of manic-depressive insanity in that, "The course of thought and action is considerably inhibited in the depressed pellagra

patient. This inhibition makes the patient difficult of access and interferes with the psychomotor processes in such a manner that they are erroneously looked upon as confused or demented. This error no doubt has occurred very frequently, all the more easily as the patients very often appear devoid of will and courage rather than low spirited. Anxiety feelings come on often accompanied by motor unrest. Delusional ideas may occur, but the delusions are loose and are readily abandoned by the patient. The depressed pellagra case has always a clear realization of his physical illness. As a rule he sees the cause of his depression in the physical disorder, whereas, on the contrary, the case of melancholia frequently does not trace his sad mood to a disease, but to external or internal experiences, their fate and failures With regard to the course, the most important difference consists in the fact that the depression in a pellagra case may pass into confusion, but not into the manic condition, as is frequently the case in melancholia." The other form is the confused state, occurring in the so-called typhoid-pellagra. About this he says in part: "Here the difficulty of separating other causes of the mental disorder is even greater. In order to diagnose pellagra-typhoid, it is absolutely essential to overcome these difficulties; otherwise one might easily include amentia forms erroneously One finds in them neurological symptoms which belong to pellagra but are foreign to amentia, such as, for instance, hypertonia, abnormal exaggeration of the tendon reflexes. From the mental point of view one does not find the patients so confused as they appear; they are partially accessible and often can give correct information concerning their personality. Frequently the patients brought to a hospital recognize that they are no longer at home, but they may not be able to form a clear idea of the new environment, although they can grasp the individual facts. Insight into the illness is always present, whereas the effect of the impressions of the outside world may be considerably impeded; Hallucinations are rather infrequent and not so manifold as in amentia. . . . Pellagra-typhoid might be confused with delirium tremens, in which also the autopsychic orientation

is preserved; the anamnesis, the physical symptoms, and the peculiarities of hallucinations of the alcoholic allow us, however, to avoid this mistake."

Prognosis. In the United States the outlook is regarded as serious, the mortality reaching 30 per cent at least (Lavinder). In Italy the mortality is about 4 per cent (Osler). In children the prognosis is much more favorable.

Treatment. The Thompson-McFadden Commission say : "The immediate results of hygienic and dietetic treatment in adults has been good, but after returning to former conditions of environment most of the cases have recurred." A liberal mixed diet with plenty of fresh meat is recommended by many. In regard to the efficacy of the various preparations of arsenic, there is no unanimity of opinion, although Fowler's solution, salvarsan, and the cacodylates are quite generally used.

The case I have to present (M. P.) was readmitted to the Institute service of the Manhattan State Hospital, April 15, 1914, aged 58 years. She was born in Indiana, but, at the age of one year, came to New Jersey, where she constantly resided until her family moved to New York in 1908, her last residence being on West 133d Street. She did not return to the West, and she had never been in the South.

She is described as having been bright, intelligent, quite sociable, and not given to worry or depression. She married at 29, and has one son. No other pregnancy. She had, in all, nine attacks of depression of the manic-depressive type, and was seven times committed to an institution for the care and treatment of the insane.

The first attack occurred at 49; she was committed to the Morris Plains Asylum; recovered in nine months. Thereafter she was twice committed to the same institution, the third time remaining one year and eight months. She was first admitted to the Institute service of the Manhattan State Hospital April 1, 1909, remained two months. Second admission November 8, 1910; she was finally paroled October 2, 1911, having been in the meantime twice on parole, but only to relapse shortly. The third time she was here from October, 1912 to January, 1913. From each of

her attacks she recovered. The attacks were all similar in character. There was a general slowing down, and a mild depression with feelings of insufficiency. From the physical status during her former admissions, the following may be mentioned: There was hypertrophy of the thyroid, especially of the right lobe, but no tremor, tachycardia, or exophthalmos. There was no history of venereal disease.

Careful inquiry of patient, husband, and son showed that she had not had any previous skin disease, or any unusual gastro-intestinal disorder at any time. While under observation during the past summer, she was somewhat slowed down and below par physically, yet she had quite a good appetite, her diet consisting of fresh meat, eggs, and vegetables. In the early part of August she began to have pain in the stomach, nausea, and loss of appetite; mouth felt sore, bowels constipated, legs and feet felt numb; she appeared somewhat reduced physically, but did not at that time mention her symptoms. A week or so later she observed some white lines on the backs of her hands, and about the same time some redness of the wrists; next a small hemorrhage into the right upper eyelid occurred, which became discolored. On September 6 a physical examination showed—lips were blood red, margins dry and parched; tongue felt thick to the patient and looked red, congested and swollen, papillae stood out prominently and margins of tongue appeared denuded; along the margins of the gums and on the left side of the frenum, small white patches were seen. There was anorexia, nausea, and pain in stomach as above mentioned. Skin of temporal regions and of forehead had a brownish red appearance, showed a coarse desquamation, and felt rough and thickened. Lesions of hands and wrists were symmetrically distributed, especially on palmer surfaces; the dorsal surfaces of the hands showed a brown discoloration somewhat tinged with red; skin looked dry and wrinkled and there was considerable desquamation. Between the fingers, and between the thumb and index finger, especially, there were fissures with red bases covered with a serous exudate; fissures appeared also between some of the toes. The palms of the hands

showed desquamation of large whitish flakes. On the wrist the dermatitis was well marked, the skin having a brownish red appearance, with some areas of desquamation. The line of demarcation between the involved and the uninvolved areas was sharply defined. Over each olecranon was a small, reddish brown area. There was much complaint of a hot burning sensation of palms of hands and soles of feet. On dorsal surfaces of hands these sensations were not so pronounced. Calves were very tender on pressure, while forearms and arms were only slightly tender. There was some complaint of pain over stomach, which was somewhat tender on pressure; other parts of abdomen less so. Knee-jerks fairly active.

On September 13 patient had four weak spells, the third and most severe one occurring at 7 P. M. At that time pulse became weak and irregular, consciousness was lost and the sphincters of bladder and rectum were relaxed. At 4 A. M. September 14 she had a convulsion lasting 3 or 4 minutes, lost consciousness, right face was drawn around, eyes closed, two or three clonic movements of right arm occurred, then arm became rigid. Next the right leg flexed and extended a few times; then it also became rigid; bedding was soiled and wet as before. Following the convulsion she talked for a short time in a rambling manner about clothes, saying, "Those clothes are all mine, just leave them there," etc. Bowels were loose, and stools had a very offensive odor. Thus far no blood was observed in the stools which had a yellow color, but on the 16th and 17th the stools became black, almost tar color. On the 17th she was somewhat weaker, but quite talkative and very alert, recognized the nurses on the ward by their tone of voice, and commented on what they were saying. She moved her arms and legs about freely. In the evening a little blood was observed in the stools; heart action became very weak and death occurred at 1.50 A. M. on September 18, 1914.

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Dr. C. O. CHENEY reported the autopsy findings in Dr. Wright's case of pellagra.

The cause of death was found to be an acute peritonitis from perforation of two ulcers of the sigmoid.

Reflection of the abdominal wall showed the intestines, especially the large intestine, as having a markedly congested appearance. A coil of the small intestine was stuck in the pelvis, and its removal showed it to have a linear, fibrinous exudate where it had been attached to the pelvic wall, and shreds of fibrin, recently shed, were scattered over other coils of the intestine. A few c.c. of an opalescent fluid were found in the pelvis. The sigmoid was plastered against the upper pelvic wall by fibrinous, hemorrhagic, recent adhesions, which walled off two perforations, about 2 mm. in diameter, on the outer surface, so that there had been no extravasation of fecal material into the abdominal cavity. No other perforations were found, but on the outer surface of the coecum there was evidence of a peritoneal reaction, with the formation of adhesions, around a small area of the intestine where the wall was thin, and evidently had nearly perforated. On opening the large intestine it was found that from the rectum to the coecum there was riddling of the mucous membrane with ulcerations, some of these being small, circular, with a punched-out appearance, and others being irregular, with

necrotic edges. The entire circumference of the gut was involved. The ulcerations were slightly more numerous in the rectum, sigmoid and coecum than in the transverse colon. The ulcerations in the sigmoid which had perforated, were found to be larger on the internal surface than their points of peritoneal perforation.

The small intestine, for about two feet from its lower end, also showed numerous ulcerations analogous to those found in the large intestine and being equally distributed throughout the entire circumference of the gut. The ulcers gradually decreased in number from below upward, so that the upper part of the ileum and the entire jejunum and duodenum were free from ulcers and showed little congestion. The general gross appearance of the large intestine was that which has not been uncommonly found in elderly patients dying apparently from exhaustion following a chronic diarrhea, but the number and extent of the ulcerations was rather unusual, their presence in these cases not having been previously observed in the small intestine, nor have we seen here other cases like this where perforations occurred.

Microscopic examination showed a marked necrosis and ulceration of the mucous membrane, the breaking down often extending through the muscularis mucosa and completely through the submucosa into the circular muscle layer. There were various forms of bacteria which are commonly seen in the intestine. Signs of chronicity were evident in the presence of increased, apparently poorly nourished connective tissue in the submucosa. There was not a marked cellular reaction which one might expect with a severe infection of the normal intestinal wall, and it was felt that the process had been due to ordinary bacteria acting against an intestine with a much lowered resistance.

The thyroid was much enlarged in either lobe, and on the left side, below, and evidently entirely separate from the left lobe of the thyroid, was an accessory thyroid, one inch long and one-half inch wide. Grossly and microscopically, both the thyroid and the accessory thyroid glands showed colloidal degeneration.

The other viscera presented nothing unusual.

THE PATHOLOGICAL CHANGES IN THE NERVOUS SYSTEM
IN PELLAGRA.

Discussion of Dr. WRIGHT'S case, by Dr. CHARLES B.
DUNLAP.

Dr. Dunlap stated that the brain of the case presented by Dr. Wright was the third specimen of this disease that he had had an opportunity to examine. Two others had come to the Institute, one from Dr. McCampbell of Morganton, N. C., the other from Dr. Robbins of Hornell, N. Y.

In the case from North Carolina, both the brain and cord were received. Microscopical examination of the motor areas of the brain showed unquestionable so-called axonal changes in a rather small number of the Betz cells. These changes consisted, in brief, in swelling of the cell body as a whole, while in the center there was a pale more or less homogeneous appearance of the protoplasm with a loss of stainable substance which might or might not be well preserved at the periphery of the cell, and displacement of the nucleus towards the border of the cell body. Satellitosis was present but not excessive. There was much pigment in the nerve cells as well as in the neuroglia cells and blood vessel sheaths. In the spinal cord no clear axonal changes were made out. No clinical history accompanied the case, and we do not know whether it was acute or chronic.

The second case of pellagra, received from Dr. Robbins of Hornell, was one which he reported in the *Medical Record* of 1913, volume 83, page 55. The large nerve cells in the motor cortex of the brain in this case showed typical changes, with central swelling, and displacement of the nucleus to the periphery of the cell as described above. Satellite cells were also increased; the pia was quite cellular, but this change was not of inflammatory character. There was some increase of endothelial cells in the cortical blood vessels. The spinal cord was not received.

The patient was a woman of 42, born in Steuben County, New York, and she never had been out of the county. She had a drunken husband, and had to support herself and her children by scrubbing and washing. The staples in her diet appear to have been largely beans, pork, oleomargarine and

baking powder biscuits. Rice was not mentioned; one ten-pound sack of corn meal was used during the winter by the family which consisted of three. The patient consulted Dr. Robbins for attacks of jaundice, diarrhea and lassitude in the two years preceding death, but it was only seven and a half weeks before death that skin lesions appeared on the back of the right hand; about one week later the left hand was also affected, and there was some extension on the forearms. A week before death a bloody diarrhea set in with six to thirty movements daily. She was much depressed at times though not suicidal; she had an enlarged thyroid gland and exophthalmus. The knee-jerks were increased at first, but towards the last all reflexes were abolished. Bed sores developed, and the skin lesions became dry, parchment-like, and began to exfoliate.

At the autopsy the brain grossly was essentially negative; the enlarged thyroid was confirmed; the intestines were injected. It seems to be merely a coincidence that in Dr. Wright's case the thyroid gland was also enlarged: Rossi publishes an illustration from a section of the thyroid in "pellagra-typhus" which shows much colloid, although the gland was not stated to be enlarged.

The third case in the Institute series is the one reported by Dr. Wright; in this case typical axonal changes were found in nearly all of the Betz cells of the motor area, and in some of the smaller pyramids. There was moderate satellitosis, and pigment in large amount was present in the nerve cells and neuroglia as shown by Scharlach R. and the Marchi stain. In the spinal cord, especially in the lumbar region, axonal changes though present were only occasional. The peripheral nerves showed, in only a few fibres, a slight amount of dark staining by Marchi's method, but as a whole the nerves were well preserved, and there was little in the white matter of the central and frontal convolutions to suggest nerve fibre degeneration in these parts.

All three of these cases of pellagra, then, show in the brains, the typical axonal changes such as were described by Dr. Meyer under the term "central neuritis." In looking over various examples of the latter disorder in the

Institute collection we were unable to discover any essential differences between the reactions in this and in the cases of pellagra.

Other conditions in which these same parenchymatous changes may be found are those included under the Korsakoff symptom complex, as was clearly shown by one of our cases of this character in which both peripheral and central neuritis were present. Cases of chronic alcoholism with or without delirium tremens, as reported by Cole in *Brain*, volume 25, 1902, also show, as far as I can tell, the same changes. Cole found the typical alterations in the nerve cells of the brain or spinal cord, or both; he considered them to be of toxic origin and due to selective action of a toxic substance on the whole neurone. All of his cases showed mental disorders, in addition to alcoholism and polyneuritis. Singer and Pollock, *Archives of Internal Medicine*, June, 1913, also found the characteristic nerve cell changes in chronic alcoholism.

In beriberi, with which we have had no experience, but which various authors (Mott, Funk) believe should be classed with that group of cases of which pellagra forms one, axonal changes, apparently of characteristic type, have been again and again reported in the large nerve cells of the anterior horns of the spinal cord, in addition to the peripheral neuritis, but in the few examinations of the brain that I have been able to find reported in the literature the results have been recorded as negative.

Besides the above mentioned groups certain individual cases come to autopsy in which the same characteristic pathological picture is found as described above in central neuritis, pellagra, polyneuritic psychoses, and chronic alcoholism, although during life no symptoms were observed that would suggest such a condition, the change is consequently a wholly unexpected finding.

All authors who have worked with modern methods, and have examined the brains of a number of cases of pellagra, report the same findings which we have outlined above in at least some of their cases. Singer and Pollock stated that they did not find axonal changes in chronic cases of

pellagra unless these cases had died in an acute phase of the disease. Many modern authors have found slight or insignificant diffuse degeneration of nerve fibres in the spinal cord in cases of pellagra, but many of the older writers refer to well marked degenerations in the various fibre systems.

On the part of the pia some thickening has usually been reported, and often certain regressive changes (pigment deposits, etc.). The blood vessels appear to show no constant or essential changes, but, from case to case, they present a variable condition often of a regressive type. The neuroglia may be somewhat increased in amount, and it may also show regressive changes, such as excess of pigment in the cells. There is quite a general agreement that inflammatory changes, strictly speaking, are absent.

In endeavoring to interpret these pathological alterations found in cases of pellagra we must consider that the changes seen in the nerve cells, neuroglia, blood vessels, etc., in acute cases of this disease can be completely reproduced, as already stated, in all of their essential details, by other conditions where no skin lesions have ever been present, and where no question of pellagra has ever arisen. We can not say, therefore, that the pathological picture given above is in any way characteristic, in the sense of being pathognomonic, of this disorder. We can say, however, that in cases of pellagra which die in the acute stage, we may expect, and will usually find, axonal change in the nerve cells, increase of satellite cells, considerable pigment in the nerve cells, in the neuroglia cells, and in the blood vessels; but, in the absence of a clinical history, we have no means of saying, on pathological evidence alone, whether a given case is one of pellagra, or of central neuritis, or of alcoholic psychosis, or merely one of those accidental findings previously referred to. Etiologically, when viewed from the standpoint of pathological anatomy, this well circumscribed group of parenchymatous reactions does not necessarily imply that a single factor, common to the different clinical groups, is at work to bring about the characteristic changes. The changes in themselves might

be produced (as far as any evidence to the contrary is concerned) by any one of several agents, for injurious agents are multiform, while definite types of cell reactions such as the above are few, and in facing the problem of causation we should bear in mind the probability that the reactions of a tissue or set of cells are limited, and that these reactions probably may be set going by more than one causative agent.

Dr. ELBERT M. SOMERS: Dr. Holley and myself, of the Long Island State Hospital Staff, desire to report a case along the lines somewhat similar, we believe, to the one which has been so carefully described by Dr. Wright.

No. 73864: This is a case of a woman 49 years of age, who was admitted to the Long Island State Hospital February 14, 1914.

Nothing materially of interest appears regarding her family history, although the mother was naturally of a nervous and easily excitable make-up.

Patient was born in Pennsylvania; married at 18, to a lawyer, who, because of his vagaries, had caused her considerable worry, and in consequence her married life was unhappy, until his death about fifteen years ago. Shortly after this, patient and her son moved to Brooklyn, where she has constantly resided since, the son supporting the mother. The patient's health generally had, up to the time of her last illness, been good, although there is a history of rather frequent attacks of indigestion, these invariably following injudicious eating. It is stated by the son that about a year prior to admission, for a month or so she had redness and scaliness of the face, but this condition was not accompanied by any unusual gastric or other physical symptoms. At no time does it appear that the patient was inclined to any dietary peculiarities.

About two weeks prior to admission patient gave up housekeeping and boarded out. Within a few days the son, on account of the stormy weather, had occasion to bring food to his mother. He then noticed for the first time that she was not eating well, and that she seemed to be depressed and silent. Soon she began to refuse food, would

not answer questions, seemed to prefer to sit in one position, usually in a chair, took no interest in her surroundings, and within five days before admission was sent to the observation ward of the Kings County Hospital, and immediately transferred to the Long Island State Hospital with accompanying medical certificate which stated, in addition to the above, that she had fear that the police were after her, talked about gangsters and dope fiends; was at times resistive and apprehensive, and exhibited generally a retractile attitude.

The physical examination *on admission* showed skin clear, deep reflexes present, heart rather rapid, slight arteriosclerosis, tongue red but clean, urine contained hyaline casts and later albumin.

Her mental condition was that of a resistive, clinging, mute individual; paid no attention to things about her. Within a few hours she spoke spontaneously but confusedly, saying "I am not living, I can't eat, I died with the Mauretania," and many other unfinished sentences, oftentimes spoken with considerable rapidity.

Within two days showed considerable injection of the eye, increased respiration, slight elevation of temperature, face flushed, accompanied with tremor of the hands and arms, with periods of rigidity, alternating with those of relaxation, including the muscles of the neck. Occasionally there were observed jerkings or jactations of the arms, with sudden but slight contractions of the fingers of the hand; legs did not seem to share the rigidity. There accompanied a slight amount of muscular tenderness of the thigh muscles. When she would get out of bed and attempt to walk along the floor, her steps were short and her gait was of the trotting type.

Her productivity during this time showed a delirious state, "We can't go in by the left hand side—the sunny side—by aisles are measured—measureful by you." Her speech was somewhat thick and there was an occasional misplacing of syllables. Within two weeks she showed in her incoherent run of talk real flight and distractibility, with a tendency to rhyming; rather rapid alterations of

mood, talking and laughing and crying; would make no response to direct questions. She did not seem to be hallucinated. Within a month she had again become uncommunicative; would wander about in a confused way; developed untidy habits and seemed not at all interested in ordinary events.

About the middle of May there was noticed a redness of the hands. This was symmetrical, involving the dorsal surface of both hands and all of the digits and extending back to the wrist joint. The color was of a dark red or bronze, with but little tendency to disappearance of the coloration upon pressure. This condition continued for two months, and then there developed additional features of interest. Symmetrical redness and desquamation of both sides of the face appeared, involving the forehead, the infraorbital region, coursing across the bridge of the nose, down along the nasal folds to the upper lip and extending around the angles of the mouth and meeting at the chin. The line of demarkation on the hands was well pronounced, the palmer surfaces being smooth. The dorsal surfaces showed, here and there, fissures.

There was marked redness of the mucous membrane of the mouth, rectum and vagina, with here and there small patches of grayish color on the inside of the upper lip of the mouth which could not be removed.

The accompanying diarrhea was of a yellowish green hue. There was intense and frequent vomiting whether or not liquid food was taken. The gastric symptoms did not seem to yield to the ordinary remedies. Her general nutrition was very much reduced and she had a mild fever and rapid pulse. The Wassermann examination was negative.

Accompanying the cutaneous and digestive disorders were certain organic and nervous manifestations. The patella, Achilles and abdominal reflexes which had heretofore been hyperactive, were abolished. There was present the Gordon reflex of the right foot. The pupils, however, were responsive, regular and equal. Motor strength was symmetrically reduced.

The patient died five months after admission, showing, up

to the time of death, well marked symmetrically developed skin lesions and severe gastric symptoms.

It is very regrettable that our sustained efforts to secure a proper autopsy failed. In consequence, our description of the post mortem findings are limited entirely to the torso. There was marked injection of the mucous membrane of the stomach and of the large and small divisions of the intestine. The kidneys showed acute parenchymatous nephritis. There was slight redness and exfoliation of the skin of both hands and redness and scaliness of the chin, forehead and either side of the nose.

This case aroused our interest because of the belief that it was one of pellagra, and in order to fortify ourselves, since it was our first clinical experience with this array of symptoms, we availed ourselves of the opportunity of examining a case of pellagra at the Post Graduate Hospital.

It would have been of material interest to have secured sections of the cortex for the study of the large brain cells in order to clear up the possibility of an accompanying central neuritis, for, at one period of the patient's illness, she presented clinical features quite suggestive of this symptom-complex.

SOME OBSERVATIONS ON DEMENTIA PRÆCOX.

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In the genesis of dementia præcox we now regard certain peculiarities of make-up as important. There is no longer any question that individuals with the *shut-in personality* are essentially the type who break down with this disorder.

The original description of this make-up left out, to quite an extent, the abnormalities in the sexual life of these individuals. Further observations place us in a position where we can now say more about these.

In the study of dementia præcox in women, we have been impressed with the unnatural attitude toward those of the opposite sex, and with the fact that engagements, marriage, and childbirth are important precipitating factors. In men, too, we have been impressed with the fact that the sexual life is not normal. In them we also find a marked inability to adjust themselves properly to the other sex, and, above all, a shrinking from marriage.

One might expect such an individual would not seek sexual intercourse with women, but this is found not to be a general rule. On the contrary, the seeking of sexual intercourse seems to be not infrequent, at a certain level of society at any rate; indeed we may find cases who associate freely with prostitutes, but they seem invariably to show a marked inability to *fall in love* with a woman. This raises the interesting question of the various ways in which lack of sexual adaptation may manifest itself.

It is generally admitted now that defect of sexual adaptation is a part of a native congenital defect of adaptation which does not permit the individual to have normal development of his adult sexuality; he remains fixed in infantile tendencies.

In the developmental stage, all of the attachment is directed toward the parent of the opposite sex. Actual sensual feelings come later, and play a small rôle in this developmental stage. But with the approach of puberty

these sensual feelings make themselves felt. Such feelings would naturally tend to flow in the direction in which lay the feelings of the earlier period, namely, the tender feelings. This is impossible. Therefore the individual is forced to choose new objects. In the normal this shows itself by love affairs, in which, of course, the sensual side plays an important part. This is a preparatory step in the development of the biological aims of mating and propagation, i. e., marriage.

In some persons this change at or about puberty does not take place, or if it does, it is far from being smooth, and as a result the love life (to translate Freud's term *Liebesleben*) is warped.

There are various ways in which this particular difficulty may show itself: One is that of persistent and total impotence with the opposite sex; as another type, we have to regard the homosexual tendencies; and a third, as Freud has pointed out, is the inability on the part of the individual, in the process of replacing the infantile by an adult object, to combine the sensual feelings which did not refer to the mother, and those finer feelings which did refer to her, and to bestow these feelings in combination on a woman. Objective love or adult love, i. e., that feeling which is the necessary prerequisite for marriage or its preliminaries, is a combination of tenderness and sensuality. The persons we are now speaking of can have erotic feelings for, and seek sexual gratification with, women for whom they have neither tenderness nor regard, and they can bestow their tenderness and regard to other women, but they are then unable to have sexual feelings for them or to seek sexual gratification with them. This is evidently because, as we have said, they can not fuse the two sets of feelings into one.

Although we started by speaking of certain peculiarities in the dementia præcox make-up, and shall presently illustrate this by some cases, we know that these various forms of sexual maladaptation are by no means limited to dementia præcox, but are a feature common to all neurotic tendencies. So far as dementia præcox is concerned, we have to be acquainted with them because they explain to us the

reason why some precipitating causes can act in producing a break of compensation, and not because they explain the serious consequences which follow. This last mentioned fact is a problem by itself. But before we go on to dementia præcox we may, in a relatively normal individual, briefly illustrate the peculiar lack of fusion between the feelings of tenderness and regard, on the one hand, and the sensual feelings, on the other hand.

The patient is a man who was not in the hospital but who accidentally told me his story. He therefore did not directly consult me; nevertheless his whole attitude showed that he felt his situation to be something abnormal and one in which a physician might help him. He strikes one as of exceptional capacity; he is quick, alert, and intelligent. In spite of the limited facilities for education, he rose gradually to a good position as superintendent of a cable wire factory. He tells me that he is very popular among his acquaintances, has many male friends, and drinks with them a good deal. He is evidently of hypomanic make-up. So much then for his general make-up.

What he asked to have advice about was a certain difficulty in his sexual life. He had come to an age, 31, when he felt he should marry, and had met a woman for whom he had much affection and regard but could not get himself to decide upon marriage. The reasons are instructive. He said, speaking of this woman, "I have a reverence for this woman like for my mother or my sister, but I can not imagine myself having sexual relations with her."

He added that he is quite sure that she is in love with him, but that he can not bring himself to marry her. This worries him, though it has by no means caused a depression or interfered with his ordinarily bubbling spirits, activity, or efficiency.

The history then obtained from the patient is as follows:

The father was an alcoholic; mistreated the patient's mother, and was not true to her. Both he and his brother were very antagonistic to him, though the patient was more so than the brother. The mother continued to show considerable affection for the father, as did the patient's sister.

The latter always thought that they, especially the patient, were too severe with the father. The patient and his brother refused to have the father live in the house, and the patient henceforth took the position as the head of the family, of which he seems quite proud. For example, he mentioned, with considerable satisfaction, the fact that in the question of the sister's marriage *he* was consulted before the father ; and he showed the same satisfaction when he said his father was afraid of him. Of the mother, who died in the spring, he was very fond.

The patient's account of his sexual life is briefly as follows: When 19 another man advised him to go with a certain woman so that in case this woman became pregnant, she could be proved to be a prostitute. Both he and the friend had sexual relations with her for a year regularly. At the end of this time the patient quarreled with the friend, and got rid of him. For four more years he had the girl to himself. Here again he *boasted* of his sexual potency. He stated spontaneously that he never loved this woman, and that his relations were of a purely sensual character, and that he often made up his mind to leave her. She was five times pregnant, and always had an abortion performed. In the fourth pregnancy he decided, in a half-hearted way, to marry her, but did not do so when he found out that the girl had had an abortion performed. Finally she ran away with another man. This threw the patient into a mild depression, which, though it did not materially interfere with his work, yet robbed him of his interest in it, and led him to drink considerably. During this period he met, in a wine room which he frequented, a woman considerably older than himself. He made a confidante of her, and developed a considerable attachment for her. She sang songs which, he said, were first sad, and which fitted well into his mood at the time ; but gradually the songs became more lively, and as time went on she lifted him out of his depression. He says distinctly that he had much affection for her, or, as he put it, he revered her, and spontaneously he added, "She was like a mother to me" ; but it never entered his mind, indeed it was abhorrent to him, to

have sexual relations with her. This is all the more striking because, as we have seen, he had certainly shown no moral scruples about sexual matters, in the ordinary sense, and because the woman was a former vaudeville star who had come down to singing in this wine room, though, as he says, she was still beautiful. After the episode with this woman he went back to a promiscuous sexual life with prostitutes, whom he goes to see, as he says, when he has a sexual desire, but with whom he is disgusted as soon as this is satisfied.

It should be added that the death of his mother caused considerable grief but no nervous symptoms.

We have then a man with externally an excellent adjustment to life, but with evident difficulties in the sexual sphere. He was quite capable of having sexual relations with women, but for them he had no tender feelings; he was, however, quite unable to have any erotic desire for a woman for whom he had a real feeling of love or reverence. It is of course not accidental that both women for whom he had these tender feelings were older than he, and that he draws, in the case of both of them, a plain parallel with his mother. They both represented mother substitutes.

The strong infantile attachment is also shown in his partly justified, but evidently exaggerated hatred, of his father. The depression is probably to be explained by the sudden cutting off of his sexual outlet, and the resultant inflation of his infantile tendencies which then made him prone to the type of sublimated mother attachment of which he was capable, namely, his non-sensual love for the vaudeville star. Under these circumstances it is not surprising that this was the means of lifting him out of his depression.

We shall now be in a better position to understand the defect of sexual adaptation in some cases of dementia præcox, which we will briefly describe. We shall, however, not confine ourselves to the make-up in these cases, but try to bring out a few other points about the disease, more particularly some points about the precipitating causes and about the content of the psychosis.

The first case of dementia præcox is William R., 31 years old, who was admitted May 30, 1914. He remained in the hospital only two and a half months, and since then has been able to go back to work.

We have information about this man's make-up from the mother, two brothers, a cousin, and a young woman who was well acquainted with the family. From these sources, as well as from the information which the patient himself gives, we can form a fairly accurate opinion about him.

The various informants agree that the patient was always peculiar. Even when a boy he was more quiet than others, did not play with other boys, but spent most of his time at home. The cousin speaks of him as a mamma's boy, and the brother also mentions his pronounced tendency to stay with his mother rather than to associate with outsiders. According to the patient's own statement, he used to prefer, during his school years, to ride about on a grocery wagon with a man ten years his senior rather than play with the boys. His inclination to make friends outside of the home was evidently quite limited. It is stated that at home too he often stayed by himself. Later in life he began to drink in saloons, as we shall see.

So far as his intellectual capacity was concerned, he himself says that he was rather poor at school. But when he commenced to work he is said to have done well, and finally he took up the carpet-laying trade. He was regarded as a good workman and earned \$63 a month.

We have then a man who, though intellectually not definitely inferior, was of a rather marked shut-in type. It is interesting to study this man's sexual life more closely. He himself states that when a boy he never paid attention to girls and was always shy with them. He claims to have become conscious of his sexuality only very late, or, as he puts it, he learned he had a penis only when 15 or 16 years of age. He states that he masturbated very little. He began to go with prostitutes at about the age of 18 or 19, and for a number of years went as often as once in two weeks, and he was potent. As time went on he did this less often, and for some years only about four times a year. His atti-

tude toward marriage, and his ability to fall in love, were however very defective. He was twice thrown together with girls, and called on one fairly frequently for three years, and on another now and then. When the first girl began to talk of marriage, he says, he got disgusted, and henceforth saw her only at long intervals. He claims never to have loved a girl, "I never knew what that was." He of course rationalized his lack of desire to get married by his financial situation, and he added that he could not marry so long as his mother lived, as he had to support her, which is not in accordance with facts.

His sexual feelings toward this woman and others of the same type were really never aroused. Then he also called at times on another girl, who, according to her own statement, which we were particularly fortunate to get, made for a while some advances to him. Her description of him is interesting. She said he was quite bashful; when he called he came only after dark, was afraid he would meet people. She stated further that, although she took the initiative, he was too shy, never really made love to her, was not at all like other men she knew, in fact, she said, he was "more like a girl than a man." When she spoke to him of marriage, he told her she better get somebody else. She finally paid no attention to him, though she was a friend of the family, and later visited him here. The brother tells us that the first girl used to write endearing letters to the patient, about which the brother teased him. The patient destroyed these letters, and said all the girls were alike, that they all wanted a husband. This is the extent of his attempts at love, if they can be called so. It should be added, however, that according to his own statement he always thought he would marry the first girl when he would be through with his apprenticeship, and become established in life.

We will now go back and take up the rest of his history, and it is necessary first to mention that he was in the habit of drinking some for about ten years before admission.

Four years before admission, having had various positions up to this time, he settled down to a definite trade and be-

gan to learn carpet laying. It has been stated above that he was efficient in this, and we may add that his position had been kept open for him and that he fills it again now. But it is quite evident that since he took this position a change has come over him. In the first place his cousin mentioned spontaneously the fact that he became more reticent. We also know that he drank more, and for two or three years has been in the habit of taking as much as six or seven glasses of whiskey a day. The whiskey, according to the brother, made him quarrelsome, and the second girl mentioned above also states that he was very irritable toward her when under the influence of alcohol, and once threatened to hurt her. Finally, the patient himself gives us clear evidence that at the time when he took up his definite trade, mild psychotic symptoms commenced, which fact was not known to his family. He began to think the men in the shop were talking about him. He thought they wanted to get rid of him so as to get his job. He told them about it, but they only laughed. Then he also heard voices (it is not clear at which period of the four years this commenced, but it is evident that it was before the final breakdown). They called him rummy, said his work was no good, "we will fix him." He did not react to them in any special way.

Gradually the time approached when he was supposed to finish his apprenticeship, in other words, the period, when, as he himself said, he thought he would marry the girl. About that time, that is, two weeks before admission, he went to drink with some fellows, and after a few drinks he began to feel queer, and then got what he called unconscious, felt dopey. How he acted is not known. The brother says he was very quiet when he came home, and went at once to bed. The patient says that that night he saw men coming out of the mirror, then a procession of men. He had no fear. That night he also vomited. Further accounts which he gives about this episode are as follows: He says the men had put saltpeter into his drink, it was stuff like milk. This influenced his head, broke up his memory, made him lazy so he could not do his work. He

also said it took away his sexual power, gave him a pain in his back. Nevertheless he went to his work next day. The boss, he claims, told him that he talked to himself, and advised him to go home. The family noticed nothing special. Another set of drinks taken in company of the same men later, again gave him a queer feeling, and this time he became afraid and ran out of the saloon without his coat. But he again went to work, though he could not do the work so well. The boss told him at this time that he would soon have finished his apprenticeship. He did one job satisfactorily, but when the boss sent him and a girl out to put down a carpet, he began to act queerly and to walk in the wrong direction, away from, instead of toward, the place where he was to do the job, although he was well acquainted with the street and the house to which he was supposed to go. The girl returned to the boss, reported that he was queer, and the boss then sent him home and told him to get his head examined. At home he was restless, walked the floor, and said every body wanted to do him.

In Bellevue he is said to have been moderately depressed. He said they wanted to get rid of him in the store, frame him up; that they had called him a "crook," and that he had thought he had been doped.

Here he was quiet, had little to say, did not associate with any one, was rather careless about his appearance. He was neither apprehensive nor depressed, but rather indifferent. He now and then heard voices saying "dirty things," such as "c. s." and "bastard," and he thought some of the men here were saying it, and they might be in league with the men who had put the white stuff in his drink in town.

To *review* the case briefly we would then say that the patient presented a shut-in personality, with the following abnormal traits in his sexual life: Although the purely sensual side of his sexuality seems not to have been repressed, he was decidedly defective in his capacity to make love and to contemplate marriage seriously. We can understand this better now since we have become acquainted with the case before related. Such abnormalities are an evidence

of an infantile attitude, so far as love and marriage are concerned, and represent an inability to develop beyond the mother attachment, the stage of childhood. In the first patient, that of the normal man above described, plain proof of the rôle which the mother attachment played was easily furnished in the account of the case. In the present case this is not clear from direct evidence.

In this man's psychosis we see two periods: the first commenced four years ago when he took up his final life work, which was supposed to bring him to an independent position; the second commenced when this independent position in life came definitely in sight. We know from the patient's associations that the ideas which referred to his getting an independent position in life, and the finishing of his apprenticeship, are closely related with the idea of marriage. We have shown how, owing to his make-up, it was precisely this from which he shrank so much. We are therefore justified in suggesting that the taking up of a definite life work, and the final coming into sight of the termination of his apprenticeship, represented the precipitating cause. If this is so, then here again, as in so many other cases, the precipitating cause acts in the same direction in which the defect of his make-up tended. It might be said, however, that there was no external necessity of his marrying the girl. This of course is true, but probably not an important argument. It is not likely that the external situation is *necessarily* of very much importance. It must not be forgotten that mating, propagation, etc., are a biological destiny constituting an important internal demand which may be relatively independent of actual external situations. But whatever we think of this, the facts are that marriage, on the one hand, and the taking up of the work and finishing the apprenticeship, on the other hand, were associated in the patient's mind.

Another point to consider is the alcohol. It may be said that the condition presented by the patient is an alcoholic hallucinosis. It is hardly necessary to defend very seriously the claim that it is essentially a dementia præcox. The lack of affect and the long preliminary stage are sufficient

for this. But it is a different matter to bring up the question whether the alcohol did not have something to do with the breakdown. This of course is quite probable, but it does not invalidate the importance of the *mental* precipitating cause.

We finally have to consider the content of his psychosis. Perhaps most prominent in this case are the homosexual features: Men make an assault on him by poisoning him; he sees a procession of men, and he later hears the usual homosexual accusations. But there is also another part of the trend; the poison interferes with his work, and robs him of his sexual power, and in the earlier part of his psychosis the voices commented on his work as being poor, on his inefficiency, people did not want him to go on with his work. In other words, we find in the trend a wish not to work, not to go through this apprenticeship, not to have sexual power, all of which is connected with his ideas of marriage. It is of course not accidental that when the boss told him he would soon be a full-fledged workman he went away from, instead of toward, this final job. On the other hand, the trend is an expression of a regressive sexuality that is of non-adapted love, namely, in this case, homosexuality.

The content, therefore, also harmonizes with the rest of the features of this case; so that make-up, precipitating cause, and content are the expression of the same innate tendency or defective adaptation.

We will now very briefly take up two other cases of dementia præcox in which similar principles may be illustrated, though they present themselves in a somewhat different way.

Richard S. Age 25. Admitted August 18, 1914. The patient was also a somewhat shut-in personality, a good boy who among nine other children, five of whom are living, was the favorite of his parents, and of his aunt, who plays a rôle in his later psychosis. He was rather spoiled by his mother and never played pranks like other boys. About his sexual life, we know that he went with prostitutes somewhat, but that he, like the first case, never associated with

other girls, never had any girl friends, and absolutely no love affairs. He never went to dances or parties like the others, and as the mother says, he was in this way quite different from other young men.

But he was good at school and efficient at his work, which he took up at 16, after leaving school.

When the patient was 20 his father died suddenly. He took this much to heart, much more so than any other member of the family, and henceforth a change came over him. He worked irregularly, sat about at home, and lacked ambition. But he did not make any peculiar statements until about a year before admission. What happened at that time is this: He suddenly began to curse, and told his mother that his aunt (the father's sister) prevented him from work. Since then he has spoken at times of this woman being inside of him, and has appeared more abnormal. Finally, just before admission, he told his mother that he wanted to see a doctor, and when his mother said it was too late, he left the house and went alone to Bellevue.

It is important to insert here that, according to the patient's account, his psychosis began really at the death of his father. He had gone out to get some medicine; the father took it and soon afterward died. The voices commenced at that time. They began by telling that he had killed his father. The further development of the trend can not be traced; an account by the patient as to the successive appearance of the ideas could hardly be reliable, and would scarcely be of much importance.

In Bellevue he is described as dominated by ideas which were, of course, the same as those which he presented here, and therefore need not be mentioned at this point.

Here: He remained in the hospital for two months; then was taken home by his mother, but another change came over him at home so that he was returned to the hospital. Since then he has been different.

In the first period he was as follows: He did not associate much with others, was mostly by himself, did not speak much of his own accord when left to himself. But

when interviewed, he spoke very freely, though in a manner which was very difficult to understand because his utterances seemed to be jumbled up considerably. He was, however, alert, tried to explain his ideas, co-operated well in the examination, and in this spontaneous desire to make himself clearer, he presented a decided contrast from other cases of dementia præcox. He showed certain mannerisms, such as blinking the eyes, and a peculiar forward movement of his head, associated with a grunt. These tics are associated with his peculiar ideas.

The essential content of the psychosis is this: There is a woman inside of him, his aunt, who prevents him from doing things, she holds his brains, is using his feelings. This woman is also the moon, whereas he is the sun. But sun, moon, and earth are all one person, one self. This is the main self, the world. It is a self because it is the same as our body. The body is strength, and strength is the earth. Sometimes he also says the woman is this main self; again, the woman is the moon, or the woman is the moon and earth; but the sun is himself. In other words, he is the sun, the woman inside of him is either the whole world, i. e., the moon, earth, and sun, or the moon and earth, or merely the moon. This is the situation as he expresses it, in, what we might call, a more cosmic formulation. But this is also closely connected with another formulation. He is not only the sun, but also the child of the union of the sun, and the moon on the one hand, the moon and earth (the combination of this cosmic self and cosmic body) on the other hand. He is therefore his own father, which is also shown by the fact that the voice tells him that in another world he was a great general, King of the Gods, the Gods appointed him to be the sun. That the woman inside is therefore his mother is almost self-evident, but his own statement that the woman inside brought him into the world makes it quite plain. That the peculiar relation with his mother is a sexual one becomes quite clear in other utterances of his. This woman inside has intercourse with him when he masturbates; she puts his organ into herself, and then takes his feelings away; she put her seed of life into

him through the rectum when he was an infant. His seed of life is in his testicles, therefore he possesses her power of reproduction. In support of this he said, "She has no children, there can't be any."

In other words, the patient presents a very infantile trend of having relations with his mother, of being his father, of re-creating himself with his mother. We need not go into the interesting details of his trend here. The demonstration of the main tendencies of it must suffice.

Therefore, we have here again a typical dementia præcox make-up. But he broke down, not under the demand for adult love, but when his father died.

We know that when the sexual development does not take place, the deep unconscious tendencies are those of infantile attachment. The death of the rival, i. e., of the parent of the same sex, is a frequent precipitating cause in manic-depressive insanity and in the neuroses. It acts by inflating the infantile unconscious tendencies. In our case the real psychosis also commenced at this point. A manic-depressive personality would have developed a retarded depression; in this case he developed a crude infantile sexual trend.

At first glance it looks as if the principle of these two cases were very different, but it is evident that there is much similarity. In the first of the above described cases of dementia præcox, the patient broke down because he was unable to meet the demands of adult love; he was unable to do that on account of his infantile tendencies. Here no demand was made, but the infantile tendencies became suddenly inflated through the death of the father. The principle, however, that the make-up, the precipitating cause, and the content of the psychosis were closely connected and worked all in the same direction, is again in evidence in this case as well.

We will finally present one more case:

Raymond C. Age 38. Admitted November 14, 1913. The mother describes the patient as always quiet, shy, slow, but not gloomy. The brother regarded him as a "thinker." He had some men friends, however, and was well liked by

them. The mother states that he was very shy with girls, often said he would stick to his mother. It may be added here that the mother says he was affectionate to her, called her Peggy. When the brother teased the mother, it irritated the patient.

It is stated that the patient sometimes claimed to be "sweet" on a girl, but it was always regarded as a joke. He really never had any love affairs, never went to dances, made no advances to any girl of his acquaintance. The mother wanted him to marry a girl with whom he was somewhat acquainted, but she never could persuade him to do so. The patient confirms all this, but adds that between the ages of 21 and 25, he sometimes went with prostitutes.

While he was evidently quite attached to the mother, to judge from the above statements of the latter, his relation to his father was this: The mother states that he was dominated and influenced a good deal by him.

The father died when the patient was 26, i. e., twelve years ago. The patient did not show any unusual grief then, but a change came over him at that time. He joined the union, went more with men, began to drink, all of this because he thought it was more manlike. He also says that he became an agitator in the union. However, he developed no peculiar symptoms, but he gradually drank more, especially during the last few years. He states that since he drank more heavily, he began to have sexual dreams, which he can not describe, and that he has masturbated again since that time. In other words, whereas he had had some sexual experiences with prostitutes before his father's death, this ceased after it, and later in life he took up masturbation again.

As to the psychosis, the mother states that for about a year the patient appeared gloomy, became hypochondriacal, took all sorts of medicines, went to dispensaries. He complained much of constipation and weakness, and at times said that people passed remarks about him.

The patient relates the psychosis, as is frequently the case, somewhat differently, and dates it farther back.

He claims that his masturbation about two years ago made him feel weak, listless. Then people began to make remarks about him, called him a bastard, indicated that they thought he was a degenerate. Then he began to worry about his drinking, and stopped for six months, but took it up again about a year ago. He did not care whether he worked or not, got drunk about twice a week. He began to notice that a strange odor came from his throat, it was the odor of a woman, people noticed it, would hold their noses, they seemed to fear he might vomit up some stinking stuff. They began to call him c. s., s. of b., bastard, devil, said he should be killed, put away. He also thought that his testicles were to be taken away from him. The odor also came from his rectum.

Six months before admission he had for two weeks a more disturbed period, during which he did not work; he was apprehensive, thought people were after him, were blowing whistles, dogs barked, children shrieked.

Finally as he drank more he got worse, gave up his job ten days before admission, thought he was going out of his mind, and attempted to commit suicide.

After the patient was admitted, he developed his ideas further, to the extent that his rectum was changing, that it was developing into a vagina, that menstrual fluid was coming from the rectum, etc.

In this case the very marked abnormalities, consisting of the incapacity for adult love, stood distinctly in the foreground, and were rather more marked than his general shut-in tendencies.

As to a precipitating cause we are not able, in this case, to point out anything definite. This is of course to be expected in some cases of dementia præcox, even more than in manic-depressive insanity. It is probable that the greater the adaptation defect, the more difficulty shall we have in discovering definite precipitating causes.

But this case shows another interesting feature which forms a parallel to the precipitating causes, especially to that of the second case of dementia præcox here reported.

The patient changed his habits after the father's death. He began to wish to appear more man-like; he drank and became an agitator. This, like most of the psychotic events, can be understood only through a knowledge of the unconscious tendencies. The inflation which the unconscious tendencies received after the death of the rival was in this case not transformed into psychotic symptoms so much as into fairly well adapted habits, in other words, sublimated; he got an outlet in more association with men, in drinking with them, and in becoming a revolutionary spirit.

The meaning of the trend is essentially an homosexual one. Aside from the usual homosexual accusations, his ideas, chiefly, mean that he is changing into a woman. In other words, here as in the first præcox case, one of the typical escapes from the real love destiny is chosen, the path of unreal adult love, that of homosexuality.

While, therefore, we have here no precipitating cause, we find that at any rate the trend and the make-up are the result of the same tendencies.

In *conclusion*, we desire to recapitulate the points which we have tried to make, as follows:

(1.) We have tried to show that the adaptation defect in the sexual sphere, although it may express itself in a complete shunning of all sexual relationship with the opposite sex, may often not lead to any marked repression of mere sensual sexuality, but may gravely interfere with the capacity to meet the demands of adult *love*, i. e., marriage. This is, of course, a trait not confined to dementia præcox, but is one of the ways in which, as Freud has shown, the defect of sexual adaptation may manifest itself in any neurotic individual. The first case reported was a good example of this.

(2.) We have tried to show that when we fully appreciate the internal unconscious meaning of the defect of sexual adaptation, namely, the fixation in an infantile state of attachment to the parent of the opposite sex, it is clear

that the peculiarities of make-up, the nature of the precipitating causes, and finally the content of the psychosis are very closely related, in that they all are dominated by the incapacity to fulfill the demands of adult love, and by the desire to get away from this.

The trends described in the cases here reported were either a direct expression of the desire to avoid marriage, or they represented an escape in the sense of homosexuality, or they were directly of the nature of plain infantile sexuality.

PSYCHOLOGICAL FEATURE OF THE PRECIPITATING CAUSES IN THE PSYCHOSES AND ITS RELATION TO ART.*

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At the center point of the psycho-analytic theory stands the symbol. As Ferenczi has pointed out, this term has a distinct meaning for the psychoanalyst that it has not necessarily for the layman. For instance, a painter may choose a certain color to represent a given virtue or quality in his pictures. To him and to those who study his works, this color means always the same quality. It can be translated readily from the painting into words, which will then express the artist's meaning as clearly as does his picture. This is not a symbol in the sense of the analyst. To him a symbol is an equivalent for something to the unconscious mind only, to the consciousness it represents only itself. In the unconscious mind are cravings which can not be satisfied in actuality, because they offend the moral or social sense of the individual, or often because they are longings which are of their very nature insatiable. What satisfaction they do gain is symbolic. These desires have been driven to the unconscious by repression from the conscious, as the ethical feeling of the individual has grown in power. They can not, or do not seem to die; and form, apparently, a great storehouse of mental energy. Against such a force as theirs no repression is competent as a destroying force (and, indeed, if it were, the springs of life would be cut off at their source); but an equilibrium is established through symbolic gratification. The personality is conscious only of an innocent habit, occupation, or pastime; the unconscious, however, enjoys their latent meaning, and this gratification is what causes their attractiveness to the individual. When

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This paper is the first of a series on the psychology of the benign psychoses, the work being done in collaboration with Professor Hoch. The bulk of the material used in these studies was furnished by older Institute cases, which, for the most part, have been observed with great care by Dr. Kirby. I therefore wish to express my indebtedness to him.

these so-called sublimations—that is, outlets which are socially useful, are not sufficient, gratification is obtained pathologically, and instead of a pursuit or a hobby a man has some neurotic or psychotic symptom.

It is evident that there are then, these three essential features of the symbol : first, that it has a definite latent meaning discernible to the unconscious ; secondly, that this latent meaning is repugnant to the main personality, and thirdly, that the symbol is regarded consciously as perfectly innocent. It is this last aspect with which we have now to deal. The main personality of every moral and civilized being is constantly on guard against over-indulgence of the unconscious yearnings. The watch is too strict (with practically all persons) for any direct temptation to be followed. But if the temptation come in a symbolic way, there may be, particularly with unstable individuals, a surging up of the unconscious cravings. But the wolf must come in sheep's clothing. The armor of consciousness must be pierced.

In attempting recently to analyze the precipitating causes of the functional psychoses, we have been struck by the frequency in which an incident apparently innocuous from a moral standpoint has been the occasion of a mental breakdown where the utterances of the patient have shown an out-cropping of infantile, i. e., unconscious tendencies. The inner meaning of these precipitating causes has been determined or presumed as follows: We know that with great frequency the content of a psychosis represents a reaction to the precipitating cause. In this way, therefore, we can often see the hidden meaning of the precipitating factor—the patient, in a sense, explains it himself. Again, there are certain symbols which repeat themselves so often that, where patients are not accessible for a complete psycho-analysis, we can take their meaning for granted, for the sake of theoretic study. When these occur as precipitating causes, we presume that the latent content of the symbol is responsible for the upset, and proceed to verify that presumption by examination of the utterances in the psychosis. Perhaps the most fruitful method of study that we have in many cases is the application of the reactions of

every day life to the study of the psychology of the insane, for the moods and thoughts of the sane individual are to those of the insane as the miniature is to the caricature.

It must be remembered in the formulation of the cases that follow that we are dealing only with theories. The human mind is too elusive to have its workings subject to absolute rules; nor may we expect to "prove" theories, as in the physical sciences. The best we can hope for is that a formulation we make for a group of cases may be found pretty generally applicable—as I hope this may prove to be.

CASE 1. V. C. The patient is an Italian who has lived most of his life in America; following the trade of barber with efficiency. At the time of the outbreak of his psychosis he was 33 years old, and had been married happily for eleven years. He was given to occasional fits of moodiness however, never cared for intercourse but showed no other abnormalities. Towards the end of December, 1912, he had an acute attack of mastoiditis which required immediate operation in a hospital. He returned home after two weeks, but was weakened and, the mastoid continuing to pain him, he had to have it re-opened six weeks later. The wound drained for five months in all. During this time, bothered by the pain and noises in his head, which developed soon after the operation, he became nervous and more and more anxious. During the month of May his anxiety became so intense that he slept little, and spent most of his time pacing up and down the house. He became steadily weaker, and in the middle of June, 1913, went to Bellevue Hospital. The first night there his temperature was taken rectally. Immediately he feared that this was done to kill him or to keep him sick and the next day when his wife came to see him, his attitude had changed, he then accusing her of unfaithfulness to him and having conspired with her lover to put him away. He was sent to Manhattan State Hospital where for two weeks he kept talking about his wife's unfaithfulness and for four months had an interminable number of accusations, constantly changing, about various men who had done things to him which had caused his ear trouble. During this period he was constantly depressed,

whining and almost continually agitated and often fearful. At times there was some feeling of unreality. Then during the next few weeks his mood became rapidly normal and all his delusions disappeared, leaving him normal and happy.

In this case we have a striking, almost a startling phenomenon. A patient suffering from a severe anxiety neurosis (possibly an anxiety psychosis) has for the first time in his life the experience of a man putting something into his rectum. Almost instantaneously his clinical picture is changed from that of anxiety to an agitated depression with paranoid ideas. All cases that have been analyzed of paranoia with delusion of unfaithfulness of the conjugal mate have shown a strong unconscious homosexual tendency. That this man had not indulged in the practice of sodomy is highly probable, but it does not seem difficult to imagine that the thermometer incident was sufficient in his unstable mental state to act as a homosexual wish-fulfillment. The availability of the thermometer as a symbol is apparent; the most prurient could not consciously regard the use of a clinical instrument as a moral insult.

CASE 2. The next case is not so plain on the surface. A young unmarried man of an extremely depressive make-up suddenly developed a manic attack at the age of 19 under these circumstances: He was courting a girl with favorable effect, but feeling gloomy over his financial prospects, as he had no sufficient income to support her should they be married. One day he heard of the death of his maternal grandmother, who had been supported by his father for some years. He was apparently unmoved, but an hour or so later while at the home of his fiancée, suddenly became greatly excited, announced that he was going to get all Rockefeller's money, marry his loved one, have numerous automobiles, etc., and open a legal advice bureau. (His father is a lawyer, but the patient had never studied law.) He had to be committed, and spent some months in an insane hospital, where the substance and core of his talk was of his wealth and power, embellished and variegated, of course, to true manic taste. A short analysis revealed the inner meaning of the death of his grand-

mother. When a small boy—as far back as his memory went—he visited at his grandmother's home in the country on the outskirts of New York, which to his childish mind represented the height of comfort and wealth. Presumably he had then a yearning to possess the place (probably in its turn a cloak for a still deeper-lying wish) and repressed it. At all events he retained up to and during manhood the ambition to have a country house. When asked to give the details of this house of his dreams, it was found that they were all of them features of his grandmother's home, which he admitted when confronted with the resemblance but had never before recognized. While still a boy the house had been sold, and the city spread out and engulfed the land around it, and his grandmother had become dependent on his father. Logically, consciously, there was no possibility of inheritance of a country estate on the demise of his grandparent. But the unconscious persists with the simple logic of that age when its wishes are formed. The greater size of the country home over his father's small city residence stood for greater wealth; as the hero of the fairy-tale has only to kill the possessor to own the castle, so once his grandparent was gone the ancestral halls were his. His lifelong ambition was fulfilled and so illogically as to elude his consciousness. Naturally he was elated.

The understanding of the next group of cases demands a knowledge of sexual development, according to psycho-analytic theory. Freud claims that the same longing and relief, which are distinctive of adult sexual act, are represented by the craving and satisfaction of the infant at the mother's breast. Certainly it soon transfers the physical act to parts of its own body, such as the thumb or big toe; it also finds that the irritation of certain parts of its body are capable of giving it similar delight. Freud regards all these practices as being the infantile equivalents for onanism, and terms this stage the auto-erotic, since the only object the infant has is its own body. Soon the child seeks outlet for its love outside of itself, and turns to those who have charge of him, particularly to his parents and, of these, pre-eminently the object of passion is the one of the

opposite sex. The gradually acquired ethical feeling represses the idea of direct expression of these tendencies to the unconscious. Around puberty various developments occur that have to do with the establishment of the primacy of the genital zones and the turning to normal sexual objects. In seeking the object the individual goes first through a stage where he is himself the object: then from himself to those built like him—homosexuality—and thence to the final stage—heterosexuality. It must be borne in mind, of course, that it is not meant that these stages represent types of overt sexual acts, but only the dominant type of sex craving at each particular stage.

Now, with such a complex development there is always a possibility of there being fixation at some stage, in fact we all retain traces of our earlier tendencies. There are two factors which account for these fixations; the first is a hereditary inelasticity (possibly the more important factor in the psychoses); the second, environmental influence (which may be more important in the neuroses). As life goes on, the demands on the individual corresponding to his age can be met fully only by those who have succeeded in avoiding all serious fixation. In the most hasty study of precipitating causes—in *dementia præcox* for example—the onset of the psychosis is readily seen to have been determined by an attempt at establishment of adult sexual relations. In many of the other cases a more careful study reveals the fact that the upsetting factor was a disguised form of the same conflict between the adult and infantile desires.

But even when adult relations have been established—when marriage is attained, for instance, the unconscious still yearns to return to earlier attachments. When, therefore, anything occurs which tends to strengthen the bond, or, the reverse, when an event suggests the loosening of that bond, the unconscious rebels, as it were, against the domination of the main personality, and a psychosis results. The utterances during this abnormal state betray the desire first to break away from the bond, or second, to return to the first love, or both.

With this preamble the significance of the following cases

may, I hope, be clear. An important precipitating cause in the first three cases was the birth of a child. To a wife this means a greater dependence on the husband and the most powerful of all external bonds to him. Is the puerperal psychosis, therefore, a surprise? (I must state here, of course, that in this paper I am not attempting to exhaust the etiological factors of these psychoses. Some puerperal cases, for instance, are to a considerable degree dependent on the physical condition of the mother. But that has nothing to do with the mechanism of the psychic response to a psychic stimulus.) These women are not, of course, conscious of their resistance to their husbands. In cases where there is recognized antagonism that we have had the opportunity of studying, psychoses of this sort do not occur. It is the birth of the child, that added load, which suggests to the ever-ready unconscious the burden already borne.

CASE 3. R. G., aged 23 at the time of her first attack, is a woman of normal make-up but over-passionate, sexually. During her first pregnancy her husband came to America, leaving her in Europe. When the child was born she became depressed for two or three months with ideas of inferiority and jealousy: her husband had deserted her and had another woman. When three months pregnant with her second child, she felt like teasing her husband about other women but had no puerperal psychosis. After the third child was born, however, she became depressed again with the same trend of her husband's unfaithfulness. Nine months later, after her cousin's child had been stolen by the Black Hand in her neighborhood, she developed an anxiety state during which she talked much of the Black Hand stealing her children and also doing something to her husband. Following the anxiety she had a manic attack, when the same ideas were uttered. After her fourth and fifth childbirths she had simple depressions.

This woman then expressed her resistance to marriage by a depression after four out of five childbirths. The anxiety state followed by a manic episode was an evidence of the same shrinking away from the marital yoke. The deeds of the Black Hand kidnappers suggested the loss of her own

children, as the fear of her anxiety state showed, and this unconscious wish-fulfillment slipped past the barriers of consciousness. Had any direct danger threatened them, she would probably have defended them with her very life, but a temptation of this kind was too subtle for her to grasp consciously.

CASE 4. H. T. A woman of normal make-up except for hot temper; was married at 21, and had two children without any marked mental disturbance. After the birth of the third, she never felt well, and six months later she became hyper-religious, felt sad, thought she was going to die and longed to go back to the old country, where her father was living. Then after two months of this mild depression, she one day heard some children sing part of a hymn, "Come let us go!" Although she knew the children, she immediately thought angels had put this into their minds. She seized her baby, ran out of the house, exclaiming that she was going to the old country to see her father, and had to be committed. In the hospital she soon became reduced in activity, inattentive, uninterested in her surroundings, whimpered and was depressed. She felt she had killed somebody (her husband? or her baby?), saw a baby with wings, and when asked if she were married said: "*I was married.*" After passing into a mildly hypomanic, and another depressed phase she recovered.

Here again childbirth, suggesting an added bond, produced a mild depressive reaction, which was precipitated into a serious depression by an apparently trivial incident. The wily unconscious distorted the words of the hymn into a divine command; the command was an infantile wish-fulfillment, and in the psychosis we see that she starts to join her father, has killed "somebody;" a baby has turned into an angel, and her marriage is a thing of the past.

CASE 5. C. W. A woman of normal make-up but of bad family history, was married at 23, and is said to have got on well with her husband, although she masturbated during her first year of marriage. She went through her first childbirth experience without mental trouble apparently, but after the second, when she was 25, she had a

depression lasting six months. She cried, was unable to perform her duties, and was reduced in activity. She spoke of being a bad woman, and told her husband that a man had tried to have intercourse with her before marriage. (Both expressions, of course, of her wish to be faithless to the marriage bond.) During her thirtieth year she had two abortions performed. It is important to note that there then resulted no psychotic manifestations. They were wish-fulfillments, of course, but could be met by the patient's consciousness; she had definite acts to feel guilty about and confessed to the priest seven months later. This, too, produced no real mental disturbance, but three weeks later some burglars broke into a church nearby. With churches she evidently associated weddings; and her own, of course, judging by what immediately happened. She became very much frightened, would not stay at home because, as she said, the burglars would come again and kill somebody in the house. Retrospectively she said that she feared somebody would take her honor away, and thought that the robbers had stolen her wedding dress. "Then," she added: "I thought I would run away and lead a bad life. I did not want to bring disgrace on the family, however." She was committed, and in the hospital was depressed, blaming herself for the abortions. Next she passed for six weeks into a stupor-like state, when she spoke much of death (which psycho-analysts regard as a frequent symbol for eternal union with the parents): "I am going to die. I am going to be put into a hole." She also spoke of the electric chair: "Can't you save me from the electric chair and give me to my husband?" "Make me true to him, don't let him die—I have confessed to the wrong man the shame of my life." For seven months following she was depressed, inactive, sometimes perplexed, during which state she remarked: "My children will be cut up." For another month she was natural, then had a depression with trivial content, and when menstruation set in became manic for ten days and then recovered entirely.

This case is an exquisite example of the different reactions which follow incidents that represent infantile

wish-fulfillments. She met the abortions with no abnormal reaction, because she had consciously undertaken them and could grasp the idea of their iniquity. The burglar alarm meant to her consciousness only burglars, and so the latent content (disloyalty to her marriage vows) pierced the bulwarks of consciousness and allowed an outlet to the unconscious.

For an understanding of the next two cases we must turn to a reaction of everyday life. When one has committed some crime, or has other cause for feeling guilty, a sudden accusation of any sort, though it be perfectly false, will cause one to expose his guiltiness. This reaction is used, I believe, by police to extort confessions. Now all who work psycho-analytically with psychotic patients are convinced that if there is one feature common to all the psychotically disposed, it is the tendency for the unconscious wish to come to expression. If, now, such an individual be accused falsely, his mind may work somewhat as follows: "I am regarded as guilty. But I did not commit the act mentioned; but still I am guilty. Of what? Of these ceaseless, wicked desires surely." And then these unconscious wishes come to the surface.

CASE 6. M. R. A girl of rather seclusive make-up had her first breakdown at 14, when menstruation was established. (This is a common cause of psychoses, particularly in those with great difficulty in sexual adaptation. It is the first suggestion of the new demands, which may lead to marriage.) She was afraid she would be left back in school; the girls called her stupid, and she fretted over it, cried much, was depressed and inactive for two months. During the next two years she spoke occasionally of a Jew who teased her. At 16 she was working in a factory, and the forewoman over her blamed her for an error unjustly. She became melancholy, fearful, said the girls were suspecting her of stealing; the Jews wanted to put a job up on her, were going to crucify her, and were coming in at night stealing things. When the priest came, she thought he was a Jew. The girls thought she was pregnant, was ruined, and she thought that people on the street were talking about her.

For six weeks she sat about as if in thought, and had to be urged to do anything; then she suddenly recovered.

Psycho-analysts can easily see the infantile roots of these delusions, but I can not discuss them here.

CASE 7. E. H. The patient lost her mother when $2\frac{1}{2}$ years old, and was brought up by a stepmother, whom she disliked. Her make-up was apparently normal. She was married at 16, and is said to have been happy in her new relations. When she gave birth to her first child, however, she became, for six weeks, blue, and acted in a silly way; she would become irritated at trifles among others, at the baby's crying (an abrogation of her maternal affection). Three years later she had a miscarriage, and for some days felt, naturally, weak. About this time her sister-in-law's baby died, and she became anxious about her own child. (Fear is regarded as the conscious expression of the unconscious wish. In other words, there was an underlying wish that her baby, too, should die, which we shall see repeated). Six months later she had a quarrel with her stepmother, who accused her of having stolen things from her father's house. The patient turned white, seemed much affected, and slept badly that night. She became at once abnormal, dazed, inattentive to duties, and wept much. She said she felt drowsy, that her memory was going, and that it was an effort to speak; things in her home were not her own; she was bad, should not have been married, and they were pouring kerosene over her child. She had a fear of being arrested; claimed that she was being poisoned, and that there were bugs in her bed. When removed to the hospital she was perplexed, talked much of stealing and being a bad woman: "I have been in a bad house." She denied her married name and said her marriage was a mistake. After becoming a little expansive and talkative, she recovered with insight.

Here again we have the usual expression of denial of marriage, unfaithfulness to it, and the destruction of the bond tying her to her husband, and all started by an accusation of a totally different character. I may here remark that as far as we have had the opportunity of study-

ing such cases, the justified accusation or rebuke does not seem to be followed by this depressive reaction.

The cases so far quoted have all been benign psychoses. But our principle holds true, I think, with a great many cases of dementia præcox as well. These individuals who suffer permanently are, of course, the ones least adapted to adult sex demands and, therefore, it is not surprising that the majority of them are unmarried or have broken down soon or immediately after marriage. Probably the commonest single cause of the outbreak of serious symptoms with the dementia præcox patients is a love affair. This is such a common occurrence and the sequence of events is so well known to every psychiatrist that I need not cite special cases, but merely mention certain features that would seem to indicate that these love affairs are often merely suggestive of adult sexuality and not equivalent to them in the consciousness of the patient. It must be remembered that the typical præcox make-up is largely an expression of shrinking away from sexuality; they are almost always shy with the opposite sex, and their minds are "pure." They do not think of sexual subjects. To such people a friendship with those of the other sex is really "platonic"; they are not conscious of the sexual trend beneath, but unconsciously they are. In other words, the love affair at the beginning is always only suggestive of sex. This is, of course, true in normal life as well, for the majority of decent living young men and women do not think of and often are quite unconscious of the sex craving which prompts them when they fall in love. And it is just these incipient affairs which prove so disastrous for those who are ill adapted. Any psychiatrist can recall numerous instances of these pitifully weak love affairs, the passing courtesy or trifling favor that is interpreted as an evidence of courtship. Sometimes it takes the appearance of a supposed rival to suggest to these individuals that they are in love. I can think of two examples, one a man, another a woman, where a casual friendship was exaggerated into an affair of passion with a resultant psychosis, on the friend evincing an interest in another of the patient's sex. Again it requires teasing to

exaggerate mere acquaintance into love. Sometimes the most trivial incident during the course of acquaintanceship will mark its end as such; for instance, I recollect the case of a young man who developed paranoid ideas when a girl accidentally put her hand on his leg—a striking example of the power of the suggestive. I do not claim, of course, that these are the only precipitating causes in dementia præcox, nor that they often can succeed in weathering more than an incipient passion. My claims are that a very frequent precipitating cause of dementia præcox is the early stage of a love affair, which in its nature is more of a suggestive than an actual sexual situation, and secondly, that by his very make-up, his shrinking from the adult sexual adaptation, he is less able consciously to realize the basis of love and that, therefore, erotic situations are for him more suggestive than for the normal individual.

But is this principle such a new thing? Does it apply only to the psychoses and the mentally weak? Before psychoanalysis came into being, a number of psychiatrists had noted the similarity of dreams to insanity, and have stated it as plainly as Radestock:* “Insanity, an abnormal phenomenon of disease, is to be regarded as an enhancement of the periodically recurring normal dream states.” If we turn to analysis of dreams, we find that this theory of the mechanism of precipitating causes has been tacitly recognized there. It is universally known that in the dream a large part of the imagery presented is a reflection of what has been experienced the day before—the “dream day,” as it is called. But deeper analysis shows that each image is a symbolic representation of some unconscious wish. We must therefore assume that a given experience, like its dream counterpart, was symbolic or had symbolic potentiality: it too had a latent content, it stimulated some deep-lying complex which then gained expression during sleep, that time when the normal mind operates as does that of the insane individual. The analogy to the situation in the psychoses is, therefore, complete. *The dream day experience is the precipitating cause of the dream.*

I shall quote as an example but one dream, which is

*Quoted by Freud in “Traumdeutung”; translated by Brill.

peculiarly applicable, as it shows how independent the latent contents is of both its stimulus and manifest form. This dream was produced on the seventh day of the analysis of a woman suffering from morbid anxiety. From the very beginning a strong "transference" to the physician was evident from her dreams, which had been readily understood by her as an expression of confidence, reliance, and gratitude. Then came, as soon as the analysis began to touch her vitally, the opposite feelings of hate and distrust, that came to consciousness during associations as an expression of the fear that the analyzer would abuse his privilege as physician, a feeling that he was exposing her life history for his own gratification, that he was "outraging her innocence." These ideas came relentlessly to expression, and for several days were regularly accompanied by harrowing attacks of anxiety that interfered temporarily with analysis. The underlying wish for erotic satisfaction—an idea repugnant and foreign to her conscious personality—remained unconscious however, till she read in the newspaper about some deal that J. P. Morgan had put through by unfair means, she thought. The following night she had this dream, which I give as she presented it to me :

"This dream is really too vague to tell. *I feel it has changed its form at least three times before I finally got it into my mind.* This is it : There was a financial deal to be put through. Several people were going to do it but at the last they were afraid and Morgan went in alone and managed the thing. An element of indignation and scorn on Morgan's part. *Before the dream changed to Morgan, it was something about the wheat pit, with a feeling that I was connected with it. Before that, it was something about myself.*" The associations showed, with multiple overdetermination, that Morgan represented the physician who scorned her "virtue," and who abused his medical privilege to seduce her. The scorn was of course, in turn a projection of her hatred of the analysis consciously, and, unconsciously, her opposition to seduction.

Now how did this dream come into being? Reading of Morgan's financial operations, who "betrayed a confidence"

touched off the unconscious wish to be betrayed. She said that while waking she had the feeling that she must record the dream, and knew that it concerned herself; but while thinking of it, it turned like the Old Man of the Sea, into the dream of the wheat pit, with which she was somehow identified. To the wheat pit she associated directly the "lambs" who are ruined, and her own innocence. Already there is here the staging of the financial world, but the wish was not sufficiently distorted to be acceptable to the waking consciousness, so again it underwent a complete metamorphosis and became the final Morgan dream. The loathsome caterpillar had changed into the butterfly and she was a witness of the change. This process of modification, which takes place on waking, is what Freud terms "secondary elaboration," and such an embryology of the dream makes one wonder what a riotous indulgence the unconscious may not have during deepest sleep before the remembered dream is fully symbolized. This example demonstrates, then, how the latent content of the dream day experience (regarding it as a symbol) may be reproduced in a dream, but the experience itself not appear till the dream has been politely, symbolically cloaked by secondary elaboration.

I may add that this analysis put an end to the anxiety attacks occurring when associations led to the physician. The wish having reached consciousness could be faced.

It has been shown how a reaction of normal life may aid in the analysis of a psychosis, but the reverse is much more widely true, and I wish to show how this principle of the symbol penetrating the conscious to strike the unconscious is of highest importance in our daily life. When this event takes place in a normal individual, he feels happy, depressed, is filled with loathing or rage—he knows not why and his friends are powerless to explain why the trivial has stirred him. But, as we have seen, the insane individual lays bare his soul in the psychosis, if we will but look. The symbol is presented to him, and in his delusion he explains what the inner meaning of that symbol is. The key to the illogical, or the incomprehensible reactions of the

normal man, is, therefore, the highly exaggerated reaction of the psychotic.

But it is of only one application of this principle that I wish to speak. I refer to art, including literature, painting and sculpture, and possibly music (though of the psychology of the last we know little). There are three characteristics of art which, I think, this theory will explain. They are: first, that it stirs us, moves us to joy, sorrow, pity, rage, and, as a rule, the more elusive the exact source of our feeling is, the greater is that emotion; second, art has grown from crudity to refinement *pari passu*, as the race has developed from barbarism to civilization. This holds true of the individual as well, for the more cultured be the man, the greater is his insistence on the "perfection" of the art, which he is to enjoy. This premises, as sure as "art is long and time is fleeting," that from the beginning art has been making the same appeal in different or completer disguises. Third, at the times of their most brilliant efforts, all artists, no matter what their medium of expression is, are quite unconscious of the source of their inspiration. The plot of the story, the imagery of the poet, the expression in the picture come from somewhere, as it were, outside of the producer, who feels, often, compelled to write or draw, as by an outside power. Stevenson has expressed this well in his "Chapter on Dreams," when he tells how independent his plots are of his own volition, how some of them he can trace to his dreams, and in general ascribes all that is good in his writings to some other self. "The whole of my published fiction should be the single-handed product of some Brownie, some familiar, some unseen collaborator, whom I keep locked in a back garret, while I get all the praise and he but a share (which I can not prevent him from getting) of the pudding."

These three characteristics can be explained, I hope, by the theory constructed above for precipitating causes in the psychoses.

First, however, I must enumerate several principles, with which, I think, all will agree.

All who are at all introspective have probably realized

that stories, dramas, and to a considerable extent, graphic and plastic productions are real and vital to them in proportion as they are able to project themselves into the situation represented. This is best seen in the playhouse when the gallery hiss the villain and cheer the hero of a melodrama, but is no less true of the tears of the cultured society woman when some pathetic scene is rendered. She has no sympathy for the actors; she may not know even the name of the dramatist, but she sees or feels herself in the heart-rending action before her. Who has not felt a personal triumph when John Ridd has defeated his enemies and won the hand of Lorna Doone? Who has not felt himself hurt when the hero meets with a mishap or a lady scorns him? Who has not endowed himself with the cunning of Jack the Giant Killer, or the strength of Hercules? This, then, is one of the ways in which art appeals to us, when we are conscious of why we are stirred. Is it not probable that when we are unconsciously moved, that we impersonate the hero unconsciously?

Now, everyone who projects himself in this way into an imaginary situation, loses to that extent his rigorous sense of reality which is the characteristic of the normal, sane individual. Were one to so thoroughly project himself as to be convinced that he was himself Jack the Giant Killer or Hercules, he would be for the moment insane—that is, if he be an adult. But we know, even from superficial, hasty observation of children, that they go through a stage when reality has very little meaning for them, the doll is a baby, the line of blocks is a train, and so on. This is the type of thinking that Bleuler has so aptly termed "autistic thought," and is the common feature of the psychology of children, the insane, and the artist (to some extent). Moreover, it is in early childhood that symbols come into being, the symbol and that for which it stands being for the child equivalents. Projection is, therefore, not merely originally and essentially an infantile trick of the mind, but it is also in most intimate association with symbol formation, both being dependent on an insufficient sense of reality. The adult who projects himself into the character of a story

is, accordingly, indulging in what is really an infantile trick, though it be more or less of a conscious reaction. Would it be surprising if symbols or symbolic presentation, whose roots are in infancy, should cause him to project himself unconsciously, that is, to project himself with that part of his mind that is infantile?

I think all will agree that we should expect the greater emotions should be called forth by stimulation of the profounder of our instincts. Yet, art seems to offer a contradiction to this proposition. We are not stirred by Hamlet because his life is in jeopardy; the story of Ophelia could be omitted and Hamlet still be the Prince of Denmark. Few of the millions, if any, of those who have been drawn to gaze on the face of La Giaconda have been conscious of feeling anything akin to earthly passion. On the other hand, the students of comparative art and its history can trace much of the highest in our art back to what was and is sensual; then, as civilization advances, sensuousness adds to man's delight to the loss of sensuality until, finally, we find men for whom bodily indulgence has reached a minimum, and who, apparently, derive their pleasure from following activities, hobbies, and social undertakings, that seem to bear no relation to the appetite of the flesh. Have men changed suddenly, after a painful conversion of primal instincts to what we can see is a disguised form of the same, to abandon these lusts absolutely? Is it not more likely that they still are swayed by the same passions under more perfect disguises? If this be so, these desires can be no longer conscious; if unconscious, no appeal to the conscious will rouse them. May not a secret of art be that it makes an unconscious appeal? If so, by what mental mechanism is this accomplished?

We have seen how the mentally unstable are often able to meet situations that come to them directly, but that they are caught unaware when there is a possible deeper meaning suggested by the occurrence. This principle of suggestiveness is, of course, a part of our daily lives, and is familiar to every lay and professional psychologist. Men have found that an indirect is often a more telling mode of ex-

pression than the direct. The inuendo is more bitter than the open insult, because it can not be answered logically except on the surface content. When the petulant Marie Antoinette made some ridiculous demand and the minister replied: "If it is possible, it is already done; if impossible, it shall be done!" he administered an unanswerable reproof. Had he said curtly, "It is impossible," his words would have had no effect, because the queen would have regarded the retort as mere rudeness. Our civilization is largely built on our repression of our physical lusts, and we have therefore learned to repel direct appeals to our sensuality with disgust. But the woman at the ball with a gown that "half conceals and half reveals" is the center of a score of admirers. The woman of the world who sets out to ensnare an innocent youth (or vice versa) does not make him a direct offer of her body: she lures him on with the turn of a word or a passing glance. The practice of suggestive rather than direct expression is so universal that further examples would only be tedious. The essential principle involved is that by suggesting we gain our end, while a direct expression would surely defeat that end. It is as in the psychoses: an invulnerable armor is ready for any open attack.

Our theory is then that one of the secrets of art has been laid bare by the reactions of the mentally unsound. Art makes two appeals: on the surface is that which we can grasp consciously and which seems to our closest scrutiny to be free from all obliquity; but beneath this surface, which is only a symbol, is the hidden meaning which speaks to the unconscious. A neat argument for this view is found in the difference between the etymological and the real meaning of the word *artful*. Etymologically, it should mean full of art, while in reality it signifies a cunning disguise of a purpose. Unconsciously people have altered the meanings of many words so as to betray the latent content of that which is named by the original meaning of the word.

We have mentioned three characteristics of art; let us see how this theory explains them. In the first place, art attracts us without our knowing why. This very formulation states that an appeal is made to the unconscious; the

situation portrayed is one into which we are able to project ourselves unconsciously and so gain an outlet to that desire which we have repressed. We enjoy or are otherwise moved by "feeling" the latent content of what is symbolically portrayed. Secondly, the refinement of art is in direct proportion to the degree of culture of the society or individuals who produce or enjoy it. This is a corollary to our proposition. Culture, refinement, and civilization all mean the rejection of the crude. We grow less and less sensitive to "coarseness," as we grow more able to repress our natural lusts, until finally any crude expression means little or nothing to us, except perhaps disgust. The symbol, therefore, becomes more and more refined until the latent content is absolutely hidden from our consciousness. As long as our consciousness can see the danger we are able to grapple with it. If art then, in its highest forms be an appeal to the unconscious; its outward form must necessarily have become so refined and altered that its latent content is totally hidden from our consciousness. Thirdly, why are artists unable to trace the source of their highest inspiration? The answer is now plain: The pen, the chisel, or the brush is guided by the unconscious. The artist's own conscious work goes into the elaboration of his material, and the greater his intellect the finer the work; but his plot, his "inspiration," the latent content comes from that realm of his mind which no introspection can reveal to him. His unconsciousness speaks to ours, and we are both as unable to grasp the meaning of the message, as it stands, as is the operator who transmits a cable in code.

But what are these deep-lying desires lurking in the unconscious? We have seen that we find evidence from the mentally abnormal to believe that we have in infancy cherished wishes which our more mature mind recognizes as incestuous. These are, among others, the unconscious yearnings which come to more or less open expression in the psychoses. Now, delusions and hallucinations bear a curious resemblance to dreams, and the psychoanalysis of the dreams of normal individuals reveals the same infantile desires. How may art touch these repressed tendencies?

To answer this question I shall cite two examples already mentioned and curiously applicable as they have been the occasion of more dismay to the critics who would explain them than any other examples in literature and painting. At the same time they make a universal appeal and are regarded by many as being the highest pinnacles of art in these two spheres. Finally, they have both been studied by psychoanalysts, and the resultant publications are accesible to all.*

Leonardo da Vinci's masterpiece "La Giaconda" is perhaps the most famous painting in the world. Practically all who see it are strangely moved—attracted, repelled, horrified, or enchanted. The gaze is instantly focused on the mouth, and when that smile has been seen, attention never wanders from it. We are indebted to Freud for an explanation of it, which I can not give here in detail. Suffice it to say that he has evidence from Da Vinci's life to regard it as alike to the sphinx—another source of mystery. But in the sphinx we have further evidence. It is a figure both male and female. Now, every psycho-analyst meets constantly the infantile theory that the boy's mother has organs like his own. This is the first great riddle which he has to solve. It is for him inexplicable. So is the sphinx, so is La Giaconda's smile. When we see that, we heark back to that long forgotten time when we pondered over that very problem.

To Ernest Jones we owe the elaboration of Freud's theory concerning the mystery of Hamlet. For even the briefest outline of the psycho-analytic theory of that tragedy, some introduction is necessary. We have spoken of the incestuous attachment of children to their parents that early in life is repressed to live on in the unconscious till something happens that tends to bring the wish to the surface. If a boy harbors the desire to marry his mother, the father is naturally a rival, and the child wishes him out of the way. But with this hate is combined a filial love and respect which leaves the child (and the man in his unconscious) torn between love and hate. Should his father die, the infantile wish is fulfilled and the way is open for the completion of the attachment with the mother. This is of course

*"Eine Kindheitserinnerung des Leonardo da Vinci," Prof. Dr. Sigmund Freud; and "Das Problem des Hamlet und der Odipus-Komplex," Dr. Ernest Jones, both published in the "Schriften zur angewandten Seelenkunde."

absolutely at variance with all his adult moral standards of conduct, and the resultant conflict is frequently responsible for a psychosis. Now, for the case of Hamlet. He loved his mother (and Jones shows how Shakespeare was in a situation for this to be in his mind at the time of writing this tragedy) and therefore had a wish to displace his father that was paralyzed by his love and respect for him. The father dies and the conflict between conscious repression and unconscious craving ensues.* But how much worse is this struggle than that which comes to the average man in this predicament! The murderer of his father has married his mother, and is, therefore, now *his father*. Not only has the first rival been removed and a second appeared, but by his marriage this second rival has made himself as secure from attack as was the first, for, by the rule of the unconscious, he who is called father, or is in his place, is regarded as a real father. This is the secret of Hamlet's indecision. Should he act as he was expected to do and as he consciously wished, and kill his stepfather, he would be acting in response to that command which his unconscious had been making all his life and against which the finer part of his nature had been struggling. The killing of his stepfather was, then, his solemn duty as an avenger and, at the same time, the crime of all crimes. No wonder when he had the opportunity, decision was lacking, and he put back his sword with a "rationalization" about delaying till the king should be caught in some profane act. It is to be noted, too, how Hamlet's tenderness for his mother breaks through his reproaches, and the intense delight he takes in provoking and insulting Polonius, who is another person's

*This whole conflict is epitomized in one sentence and what psycho-analysts would term a free association from the thought of that sentence. That is, it is an association that has no necessary conscious relation to the preceding utterance but is determined by an unconscious continuity of thought.

"Would I had met my dearest foe in heaven

Or ever I had seen that day (mother's marriage day), Horatio!

My father!—methinks I see my father" (proceeding with a eulogy of his dead parent).

"Dearest foe," though a phrase accepted in common speech, can have no literal meaning, unless it describes just that combination of love and hate which the child feels toward his father. Translated as it were, then, this reads, "I would rather that I and my father were dead than that my mother should have remarried," though "heaven" has probably further unconscious meaning. Then after this wish for the father's death comes the counter interest of respect, "methinks I see my father," etc.

father. He ends by killing him, which act, whether Hamlet knew the eavesdropper or not, was something that could give Shakespeare a secret satisfaction. Here was a man who was near to being a father (through Ophelia) but was not near enough to come within the range of filial obligation.

Shakespeare is here writing in the language of the unconscious, and he speaks to each of us, because each of us has gone through a similar conflict and dreams of it in some form or other every night. It is the greatest tragedy ever written for two reasons, apart from its intellectuality: first, because the latent theme is that of a universal tragedy; and second, because neither Shakespeare, who wrote it, nor the student who pores over it knows consciously what it is about. *Cædipus Tyrannus* falls short of it for us, because the problem is not so well disguised. Our consciousness can at least catch a glimpse of the purpose and puts us on guard. This language of the unconscious is a code which has been understood unconsciously by all men wherever or whenever they lived. It speaks of the deepest yearnings we all feel, whether we are Australian bushmen, Attic playgoers, or American professors of English, and its transmission depends on its failure of conscious recognition. It is therefore a code that can never consciously be understood but always felt; for, (such as the experience of psycho-analysis) so soon as it is grasped by consciousness it ceases to be felt by the unconscious. It is, perhaps, not hard to see why the situation of Hamlet should make the appeal to us which it does, but why does La Giaconda's smile mean the same to so many millions? If the language of the unconscious is to be a tongue not understood by the conscious mind, it must be a symbolic language. Why should ancients and moderns, black, white, and yellow men, all have chosen certain symbols to represent the same unconscious ideas. That we do not know. But we do know the human mind shows an extraordinary tendency to specificity when it chooses symbols or signs (using that term now in the lay as well as the psycho-analytic sense). Take the following observation as an example:

Col. Garrick Mallery in an article on "Sign Language

among the North American Indians,"* says: "A large collection has been made of natural deaf-mute signs, and also of those more conventional, which have been collated with those of the several tribes of Indians. Many of them showed marked similarity, not only in principle but also in detail." The degree of similarity was evidenced by a critical test, which he describes. "Seven Ute Indians were taken to the National Deaf Mute College at Washington, and put severally in communication with seven deaf-mute pupils. A narrative given in signs by a teacher to a deaf-mute was retold by signs from the pupil to an Indian, who in turn could repeat it accurately through an interpreter."

To many this theory may seem to debase art, and, indeed, to depreciate human nature in general. This is, of course, no argument to be considered scientifically, but it is this prejudice which keeps many from the acceptance, even the consideration, of psychoanalysis. Yet, I think, when one has once adopted the new standpoint, one is forced to a higher appreciation of mankind when he sees what the strength and tenacity of the unconscious tendencies are. Any man's rectitude appears more exalted to us, when we learn through what temptations he has passed. The pond lily is not less beautiful because it grows in a marshy slime; in fact, it gains a certain glory from its very setting. And when we see man progressively repress more and more of his immoral tendencies; when we see him turn the energy of his unholy loves into sublimated, social expressions, we are forced to take an optimistic view. We are forced to recognize that the civilizing, moral forces are, on the whole, stronger than the bestial and the immoral; for are not these desires, these tendencies repressed to the unconscious? This is the true meaning of that dangerous catch phrase "All that is beautiful is good." The highest art, that which appeals to the most civilized man, can only, by our theory, be good. Were the immoral content not completely hidden from consciousness, it would appear not beautiful but repulsive. And, finally, we gain a charity for the lapses of mankind that we could not have, did we look on man as an animal created and nourished with none but virtuous impulses.

* First Annual Report, Bureau of Ethnology, Washington.

THE INTRA-SPINAL TREATMENT OF PARESIS.*

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Since the discovery by Noguchi and Moore of the presence of the spirocheta pallida in the brains of paretics the literature has contained frequent mention of methods of treatment especially calculated to reach the organism in that position. The admirable natural protection of the brain from access by drugs introduced into the circulation, early led to the injection of spirocheticides into the cerebro-spinal sac. For the most part these proved either inefficient or disastrous. The injection of salvarsan into the sac has been in a large measure discontinued. In July, 1912, Swift and Ellis announced the results of their investigations aimed particularly at tabes dorsalis. They showed that the serum of a patient taken within an hour after he had received an intra-venous injection of salvarsan could be safely injected into the spinal canal, and that such injection favorably influenced the condition they aimed at. In the course of a year sufficient confirmation of this method appeared so that since that time it has been more or less widely used in tabes, paresis and cerebro spinal lues.

The cases I present have been almost entirely treated by this method. More recently Ogilvie has recommended, and somewhat extensively employed, the addition of a small amount of salvarsan to normal blood serum. After incubating it for a short time at blood temperature he then treats it as if it were obtained in the way Swift and Ellis recommended. This artificially salvarsanized serum Ogilvie claims to give more uniform results since the dosage is necessarily more exact.

CASE I. A brilliant young man who had lived an irregular life with excess in alcohol and venery. He was admitted September 8, 1913; age 26. He had syphilis at 20, with

* Read by invitation at the Conference of the State Hospital Superintendents, Albany, December 4, 1914.

moderately careful treatment. About a year before admission he began to feel less vigorous than formerly. His memory was not so good; he made sporadically certain extravagant statements. After this until a month before admission there was considerable variability in mood. One month before admission he began to be exhilarated and finally had marked delusions of grandeur with excitement.

On admission he was over-active, over-talkative, expressed typical parietic delusions of grandeur, and had no insight. The right pupil was a little wider than the left, and reacted incompletely to light, but reacted well to accommodation. Tongue unsteady; deep reflexes increased, but equal. Writing satisfactory. No speech defect. Wassermann in the blood positive; fifty cells in the spinal fluid. Wassermann in the spinal fluid positive. Plasma cells in spinal fluid.

From admission until the beginning of treatment, September 26, there was no especial change, except that the initial excitement calmed down to a considerable extent. The treatment is indicated by the accompanying chart. By December, 1913, he had so improved that his mood was satisfactory and he had begun to gain some insight. There was, however, no change in the physical signs. He left the hospital February 26, 1914. At that time his general attitude was essentially normal. He was somewhat anxious about the outcome of the sickness. He had complete insight. Throughout the spring he was seen frequently. His anxiety concerning himself decreased and by early summer he had returned to his law practice in a mild way. Since that time until December 1, 1914, he was seen at intervals of a month or two. There was no tendency to a recurrence of the parietic symptoms. On December 1, he stated to me that he was a little more easily fatigued than before he became ill. However, he does at the present time careful work in the preparation of legal papers and finds that he is able to apply himself without difficulty. He adds that he enjoys himself as much as ever, but in a more normal manner, and feels a natural general spontaneity.

The physical signs December 1, 1914, were confined to a slight sluggishness of the right pupil to light. The deep reflexes were normal in intensity and equal on the two sides. There was no tremor of the tongue, face or fingers.*

CASE I.

DATE.	CC. in Vein.	Serum Dilution. Per Cent.	Cell Count.	Globulin.	WASSERMANN.	
					Spinal Fluid.	Blood.
Sept. 26	0.5	40	31	0.1 Pos.	0.3 Pos.	Pos.
Oct. 10	0.5	40	18	0.1 Pos.	0.3 Pos.	Neg.
Oct. 24	0.5	50	12	0.1 Pos.	0.3 Pos.	?
Nov. 6	0.5	50	14	0.2 Pos.	0.3 Pos.	Neg.
Nov. 20	0.5	50	9.5	0.2 Pos.	0.5 Pos.	Neg.
Dec. 5	0.5	50	7	0.2 Pos.	Neg. (?)	Neg.
Dec. 19	0.5	50	9	0.2 Pos.	Neg. (?)	Neg.
Jan. 3	0.5	50	6.3	0.3 Pos.	Neg. (?)	Neg.
Feb. 19	0.5	60	5.6	0.3 Pos.	Neg. (?)	Neg.
April 14	0.5	0	0	0	0	Pos.
April 24	0	0	8	Bloody	0.5	Pos.
May 16	0.5	50	8	0.3 Pos.	?	Pos.
June 2	0.5	60	6	0.3 Pos.	0.5 Pos.	Pos.
June 25	0.5	60	3.6	0.3 Pos.	0.5 Pos.	Neg.
July 26	0.5	60	?	Bloody	0.7 Pos.	Neg.

The globulin test done was the butyric acid test of Noguchi. This was done in ascending amounts of spinal fluid beginning with 0.1 c.c. to 0.5 c.c. The figures in the tables indicate the dosage at which the test was positive. The Wassermann test was done after January, 1914, with cholesterinized alcoholic antigen prepared from human heart after the manner recommended by Walker and Swift. Previous to January, 1914, the test was done with Noguchi's acetone insoluble lipoid as antigen. Otherwise, the Wasser-

* Since this report was written (December 1, 1914), Case I has relapsed. Early in December lumbar puncture showed that he had 37 cells in the spinal fluid, Wassermann was positive in blood and fluid. On December 26, eight days after the second treatment in December, he returned to the hospital. He was anxious about himself, mentally over-active and he worried a good deal about his past misdeeds. After a few days of general nursing he improved, but did not altogether lose his anxiousness. In the latter part of January, 1915, he became, in the course of a day or two, distractible, flighty and restless. This has continued up to the present time (February 10, 1915). He has received treatments every two weeks. Cells fell to 5 on January 22. On February 5 they were 13. Wassermann in fluid weakened and then grew stronger somewhat parallel with the clinical changes.

mann test was done according to the original method. The Wassermann test was done in the spinal fluid in ascending dosages up to 1.0 c.c. The total bulk was kept at 2.5 c.c.

CASE II. A business man of 52. Acute onset: Spring, 1913. The patient had syphilis at 30, without treatment. Six years before the acute onset he had keratitis punctata. One year before acute onset he began to grow generally inefficient. Three months before onset spent money foolishly. Social judgment much impaired. Finally, in the spring of 1913, he fell into a dilapidated grandiose excitement. There was marked speech and writing defect. Knee-jerks absent. Pupils equal, but Argyll-Robertson. Wassermann positive in the blood and spinal fluid; 131 cells in spinal fluid. The excitement continued with unabated intensity until about the fourth treatment. From this time until his discharge from the hospital, the latter part of February, 1914, his improvement was steady. At the time of his discharge he had complete insight. He was a little over-talkative: somewhat boyish in his judgment and a little excitable. His speech and writing were without defect. Knee-jerks still absent. Pupils, Argyll-Robertson.

By the end of spring, 1914, his attitude was essentially normal. His judgment still showed a little boyishness. Since that time he has maintained the same clinical level until last seen, November 4, 1914.

During the summer of 1914, he attended to considerable business and did it with good judgment. His financial condition makes it unnecessary for him to engage in business.

CASE II.

DATE.	606 in Vein.	Serum Dilution. Per Cent.	Cell Count.	Globulin.	WASSERMANN.	
					Spinal Fluid.	Blood.
Sept. 29	0.5	40	79	0.1 Pos.	0.3 Pos.	Pos.
Oct. 14	0.5	50	24	0.1 Pos.	0.3 Pos.	Pos.
Oct. 28	0.5	50	19	0.1 Pos.	0.3 Pos.	Pos.
Nov. 11	0.5	50	9.5	0.1 Pos.	0.3 Pos.	Pos.
Nov. 24	0.5	60	5	0.1 Pos.	0.3 Pos.	?
Dec. 8	0.6	0	0	0	0	0
Dec. 24	0.5	60	5	0.1 Pos.	0.3 Pos.	?
Jan. 6	0.5	60	4	0.1 Pos.	0.3 Pos.	?
Jan. 22	0.5	60	3	0.1 Pos.	0.3 Pos.	0
Mch. 7	0.5	60	5	0.1 Pos.	0.3 Pos.	Pos.
Mch. 22	0.5	60	4.5	0.1 Pos.	0.3 Pos.	?
April 7	0.5	60	2	0.1 Pos.	0.3 Pos.	Pos.
June 16	0	0	0	0	0	Pos.
July 21	0.5	60	5	0.1 Pos.	0.3 Pos.	Pos.
Aug. 4	0	0	0	0	0	Pos.
Sept. 8	0.5	0.0003	13	0.1	Pos.	Pos.
Sept. 22	0	0.0005	?	?	?	?
Oct. 6	0	0.0003	?	?	?	?
Oct. 20	0	0.0003	?	?	?	?
Oct. 31	0.5	0.0003	2	0.1 Pos.	0.3 Pos.	Pos.

CASE III. Male. Age 32. In the spring of 1912 he began to be awkward in his movements. His mood became very changeable; finally he fell into an apathetic state. His speech was thick, but further accurate description of his condition at that time is not available.

In July, 1912, he received one dose of salvarsan, after which he improved considerably. In January, 1913, he became extravagant, over-talkative, and finally boisterous and grossly excited. He was admitted to a State hospital. There he was markedly euphoric. His judgment is said to have been dilapidated. In the course of two or three months he improved much and was discharged. He came to Bloomingdale April 12, 1913, for the purpose of receiving intra-venous salvarsan. At that time his pupils were sluggish to light. His speech showed a slight defect. Deep reflexes over-active. There was a positive Wassermann in blood and spinal fluid; 437 cells in spinal fluid.

His mental examination showed only a certain lack of appreciation of the seriousness of his condition, and unjustified general placidity. He went home in June, 1913, after six intra-venous treatments. Cells in the spinal fluid were then 49.

In the Fall he returned to the hospital for examination. He was somewhat dull mentally. Cells in spinal fluid were 119. Wassermann positive in spinal fluid; negative in the blood. From this time on the treatment is indicated by the chart.

By midwinter he was less dull and went to work. Since that time he has remained busy and has done his work satisfactorily. Recently, however, when he has come for examination he has appeared unusually absent-minded. This, however, so far as can be learned does not interfere with his work.

As the chart indicates, there was a laboratory relapse in the spring of 1914. At the present time, also, he is in the midst of another such relapse which, however, unlike the one in the spring, appears to show some in his general behavior.

CASE III.

DATE.	606 in Vein.	Serum Dilution. Per Cent.	Cell Count.	Globulin.	WASSERMANN.	
					Spinal Fluid.	Blood.
Oct. 10	0.5	40	119	0.1 Pos.	0.3 Pos.	Negative
Oct. 24	0.5	50	25	0.1 Pos.	0.3 Pos.	Pos.
Nov. 7	0.5	50	22	0.1 Pos.	0.3 Pos.	Negative
Nov. 21	0.5	60	16	0.1 Pos.	0.5 Pos.	Negative
Dec. 5	0.5	60	7	0.2 Pos.	0.5 Pos.	Negative
Dec. 19	0.5	60	8	0.2 Pos.	Negative	Negative
Jan. 3	0.5	60	10	0.3 Pos.	1.0 Pos.	Negative
Jan. 14	0.5	0	0	0	0	0
Jan. 28	0.5	0	0	0	0	0
Feb. 20	0.5	60 *	6.8	0.3 Pos.	1.0 Pos.	Negative
Mch. 20	0	0.0003	7.8	0.2 Pos.	0.3 Pos.	0
April 3	0	0.0003	14	0.2 Pos.	0.5 Pos.	0
May 5	0.5	60	19	0.2 Pos.	0.3 Pos.	Pos.
May 19	0.5	60	10.5	0.2 Pos.	0.5 Pos.	?
June 5	0.5	60	8.5	0.3 Pos.	0.3 Pos.	Pos.
June 23	0.5	60	0	0	0.5 Pos.	Pos.
July 12	0.5	60	5	0.3 Pos.	Negative	Negative
Aug. 18	0.5	60	4.6	0.2 Pos.	Negative	Negative
Sept. 29	0	0	13.1	0.2 Pos.	0.5 Pos.	0
Oct. 13	0	0.0003	21.8	0.1 Pos.	0.5 Pos.	0
Oct. 27	0	0.0003	14.5	0.1 Pos.	0.3 Pos.	Pos.
Nov. 7	0	0.0003	19	0.1 Pos.	0.1 Pos.	Pos.
Nov. 21	0.5	60	13.5	0.1 Pos.	0.1 Pos.	Pos.

CASE IV. Male. Admitted, September 15, 1912; age 49. Odd personality, but unusually efficient. Five years before admission the right pupil was noticed to be larger

* Amount of salvarsan added to normal serum, and treated by Ogilvie's method.

than the left. During the year before admission he had dizzy spells of light grade and complained that his feet felt heavy. There were gastric attacks whose description resembles that of gastric crisis.

Acute onset began May, 1912, five months before admission. He made violent, angry, verbal assaults on his wife. His speech became defective. He complained of pains in the legs. Between his tantrums he became listless and dropped his work. Throughout the summer of 1912, he gradually became more inactive; would not eat; was suspicious and hypochondriacal. There were no ideas of grandeur except that in March, 1912, he furnished his office with uselessly expensive furniture and hired two apartments, one of which he did not need.

On admission he was inactive; refused to eat; not oriented as to place; was suspicious and had hallucinations of hearing. He soon became resistive and silent and continued to refuse to eat. A week after admission, on one or two occasions when he did speak, he said he had been here three months.

Pupils were unequal and Argyll-Robertson. Knee-jerks and Achilles reflexes absent. Romberg positive. Writing slovenly. There was a tremor of the tongue and fingers. Twenty-nine cells in the spinal fluid. Wassermann positive in both spinal fluid and blood.

He remained resistive and inactive until after the intraspinal treatments began, with the exception that in August, 1913, for part of a day he suddenly became animated and spoke quite freely, but he relapsed at once into his old condition. After the second treatment he began to show improvement in interest. He complained of hallucinations of hearing and was very suspicious and irritable.

By January, 1914, his general attitude was so far improved that he attended the hospital dances. At the same time he was hallucinated and had relatively little insight. In June, 1914, he was in excellent physical condition. Reflexes in the legs were absent; pain sense in the lower extremities diminished. Pupils Argyll-Robertson. Speech was only occasionally a little altered. Writing satisfactory. He denied hallucinations at this time. His judgment in most

matters was satisfactory. He was inclined, however, to use rather poor judgment in regard to women.

In the Fall of 1914, he began to go to the city twice a week to business. He was found to use good judgment, and he was considered by those who inspected his work closely to be entirely cured so far as his behavior and work were concerned. More recently he has begun to go to the city three times a week from the hospital and at the present time his discharge is being arranged for.

As the chart indicates, the blood and spinal fluid remain Wassermann positive, in spite of intensive treatment with salvarsan and mercury.

CASE IV.

DATE.	606 in Vein.	Serum Dilution, Per Cent.	Cell Count.	Globulin.	WASSERMANN.	
					Spinal Fluid.	Blood.
Oct. 3	.5	40	Bloody	0	0.3 Pos.	Pos.
Oct. 17	.5	40	Bloody	0	0.3 Pos.	Pos.
Oct. 31	.5	50	17	0.1 Pos.	0.3 Pos.	Pos.
Nov. 14	.5	50	9.5	0.2 Pos.	0.3 Pos.	Pos.
Nov. 28	.5	60	7	0.2 Pos.	0.5 Pos.	Pos.
Dec. 12	.5	60	7.5	0.2 Pos.	0.5 Pos.	Pos.
Dec. 27	.5	60	5.5	0.2 Pos.	0.3 Pos.	Pos.
Jan. 28	.5	0	0	0	0	0
Feb. 19	.5	60	4	0.3 Pos.	0.5 Pos.	Pos.
Feb. 26	.5	0	0	0	0	0
Mch. 6	.5	60	3.6	0.2	0.5 Pos.	Pos.
Mch. 13	.5	0	0	0	0	0
Mch. 20	.5	60	6	0.2 Pos.	0.3 Pos.	Pos.
Mch. 27	.5	0	0	0	0	0
April 3	.5	60	6	Bloody	0.3 Pos.	Pos.
June 9	0	0	0	0	0	Pos.
Aug. 18	0	0	0	0	0	Pos.
Aug. 21	.5	60	3.3	0.3	0.3 Pos.	Pos.
Sept. 4	.5	60	4.6	0.2	0.5 Pos.	Pos.
Sept. 18	.5	60	4.1	0.2	0.3 Pos.	Pos.
Oct. 2	.5	60	3.8	0.2	0.3 Pos.	Pos.
Oct. 16	.5	60	3.1	0.1	0.3 Pos.	Pos.

CASE V. A manufacturer. Age 44. Naturally he was somewhat headstrong and irresponsible. He had lues seventeen years before admission at the age of 27. A little over a year before admission, on February 16, 1914, he became grandiose, judgment and memory became defective, and he was subject to violent outbursts of temper, in one of which he attacked his wife with a knife. He was then taken to a sanatorium and remained in one or another sanatorium

until he was finally admitted to Bloomingdale. In one of these hospitals he had, as the chart indicates, intraspinal treatments, to the last three of which albuminate of mercury was added. As the chart indicates, the cells fell from 165 to 15, but the Wassermann in the blood and spinal fluid remained positive. The report from this hospital states that at the end of this time there was no especial clinical change.

On admission here pupils were Argyll-Robertson; deep reflexes were over-active, but equal; speech and writing were defective. Mentally, he was exhilarated and showed delusions of grandeur and he had no insight.

Treatment was continued from some weeks after admission until he left the hospital in September, 1914. During this time there was a gradual clinical improvement. His mood became more normal, although he was up to the last irritable and easily stirred to anger. He was even up to the last over-active. Not long before he was transferred he concocted a scheme to escape from the hospital. At all times he showed marked moral irresponsibility. Physical signs remained unchanged.

CASE V.

DATE.	606 in Vein.	Serum Dilution. Per Cent.	Cell Count.	Globulin.	WASSERMANN.	
					Spinal Fluid.	Blood.
Nov. 1	0.5	40	165	.....	.....	.....
Nov. 13	0.5	50	?	.....	.....	.....
Nov. 27	0.5	60	?	.....	.....	.....
Dec. 28	0.5	60	?	$\left\{ \begin{array}{l} 1 \frac{1}{100} \text{ grain} \\ \text{albuminate} \\ \text{mercury} \end{array} \right.$.....	.....	.....
Jan. 15	0.5	60	?	$\left\{ \begin{array}{l} 1 \frac{1}{100} \text{ grain} \\ \text{albuminate} \\ \text{mercury} \end{array} \right.$.....	.....	.....
Jan. 27	0.5	60	15	$\left\{ \begin{array}{l} 3 \frac{1}{100} \text{ grain} \\ \text{albuminate} \\ \text{mercury} \end{array} \right.$	Pos.	Pos.
April 3	0.5	50	17.6	0.2 Pos.	0.3 Pos.	Negative
April 17	0.5	60	12.8	0.2 Pos.	0.3 Pos.	Negative
May 1	0.5	60	9	0.2 Pos.	0.3 Pos.	Negative
May 15	0.5	60	7.3	0.5 Pos.	0.5 Pos.	Pos.
June 2	0.5	60	5	0.2 Pos.	0.3 Pos.	Negative
June 16	0.5	60	8	0.2 Pos.	0.3 Pos.	Negative
July 3	0.5	60	5.6	?	0.3 Pos.	Negative
July 24	0.5	60	5.6	?	0.3 Pos.	Negative
Aug. 7	0.5	60	4.5	0.2 Pos.	0.5 Pos.	Negative
Aug. 24	0.5	60	?	?	0.3 Pos.	Negative
Sept. 4	0.5	60	4.3	0.2 Pos.	0.5 Pos.	Negative

CASE VI. Successful business man; age 51½; admitted January 7, 1914. Six months before admission he showed a slight memory defect but this did not become serious. Six weeks before admission he went to a distant city; sold goods at a low figure; drank to excess; bought numerous things he did not need, among which was a farm. On admission he had an unusual feeling of well-being. He said he was a king, had many automobiles, etc. He gave a defective account of his life. His behavior was considerably dilapidated. Right pupil was larger than the left. Reaction of pupils Argyll-Robertson. Speech slightly ataxic and slurring. Writing defective. No tenderness on squeezing calves. No disorder of skin sense made out.

Treatment was not undertaken until about three months after admission. During this time there was no essential change in his condition. By about the fourth treatment, that is the middle of May, 1914, he began to show definite improvement. This was steady and by the middle of summer he showed complete insight. His judgment was good. He was exceedingly careful in the management of his money and other affairs. His speech still was slightly ataxic. There was a tremor of the face and tongue. Pupillary signs were the same. He was discharged October 1, 1914, still in the excellent condition described. He went to the home of a relative in a distant part of the country, and we have received information recently which indicates that he is as well as at the time of his discharge.

CASE VI.

DATE.	Cob. in Vein.	Serum Dilution. Per Cent.	Cell Count.	Globulin.	WASSERMANN.	
					Spinal Fluid.	Blood.
Mar. 26	0.3	0	0	0	0	0
April 3	0.5	40	28	0.1 Pos.	0.3 Pos.	Pos.
April 17	0.5	50	16.3	0.1 Pos.	0.3 Pos.	Pos.
May 1	0.5	60	15	0.1 Pos.	0.3 Pos.	Pos.
May 15	0.5	60	7	0.1 Pos.	0.3 Pos.	Pos.
June 2	0.5	60	10	0.1	0.3 Pos.	Pos.
June 16	0.5	60	6	Bloody	0.3 Pos.	Pos.
July 3	0.5	60	6.2	?	0.1 Pos.	Pos.
July 17	0.5	60	6	?	0.3 Pos.	Neg.
Aug. 7	0.5	60	4.3	0.2 Pos.	0.3 Pos.	Neg.
Aug. 21	0.5	60	4.3	0.2 Pos.	0.3 Pos.	Neg.
Sept. 4	0.5	60	5.6	0.1 (?) Pos.	0.3 Pos.	Neg.
Sept. 16	0.5	60	4.3	0.1 (?) Pos.	0.3 Pos.	Pos.

CASE VII. Traveling man; age 32; admitted August 23, 1913. Syphilis at 22. Three years before admission he became nervous and gave up work for three months. After that his health remained good until about three weeks before admission. He then became talkative and boastful. This increased into a definite excitement with marked delusions of grandeur. On admission he stated that he was exceedingly wealthy and said he would build New York City seven bridges. The left pupil was larger than the right. Deep reflexes active. Knee-jerks active; right slightly greater than the left. No writing or speech defect. Fifty-one cells in the spinal fluid. Wassermann positive in both blood and spinal fluid. He remained exceedingly excited until the latter part of January, 1914. The intraspinal treatment was discontinued, after it had been given seven times, owing to the fact that he was developing anemia. This anemia rapidly deepened so that by the middle of January he had eleven hundred thousand red blood cells and hemoglobin 40 per cent. There were numerous nucleated red cells of all types, but contrary to what would ordinarily be expected there was but slight distortion of the individual red cells.

In the latter part of January, after about two weeks of ascending doses of iodide, he suddenly cleared up. He, however, had relatively little insight and expressed a good deal of anxiety and uncertainty in regard to his condition. He was taken home at this time against advice, and in the course of a few weeks became excited and was taken to a State hospital. It was reported that the anemia had cleared up.

CASE VII.

DATE.	606 in Vein.	Serum Dilution. Per Cent.	Cell Count.	Globulin.	WASSERMANN.	
					Spinal Fluid.	Blood.
Oct. 3	0.5	40	31	0.1 Pos.	0.1 Pos.	Pos.
Oct. 16	0.5	50	21	0.1 Pos.	0.3 Pos.	Pos.
Oct. 31	0.5	50	15	0.1 Pos.	0.3 Pos.	Pos.
Nov. 14	0.5	50	15	0.1 Pos.	0.3 Pos.	Pos.
Nov. 28	0.5	60	8	0.1 Pos.	0.5 Pos.	Neg.
Dec. 12	0.5	60	16.6	Bloody.	0.5 Pos.	Neg.
Dec. 27	0.5	60	11	0.2 Pos.	0.3 Pos.	?

Of these seven cases all but one were treated fairly satisfactorily. This case received only seven treatments. He developed an anemia, probably not in relation with the intra-spinal treatment. This case relapsed. Of the remaining six cases all have shown marked clinical improvement. One who naturally was burdened with unfortunate moral tendencies is still under the custody of a hospital on account of them. One case shows at the present time a tendency to relapse. The remaining four cases continue in an excellent state of remission.

SUMMARY OF LABORATORY TESTS.

	Negative.	Reduced.	Uninfluenced.
Wassermann Blood.....	VI	I, III, V	II, IV
Wassermann Spinal Fluid		I, III, VI	II, IV, V
Cell Count.....	I, II, IV, V, VI	III,	.....
Globulin		I, IV, V	II, III, VI

All of the cases did well in the matter of reduction of cells in the spinal fluid. Only one case became Wassermann negative in the blood; in three cases the Wassermann in the blood was reduced and in two cases it was uninfluenced.

The Wassermann in the spinal fluid became entirely negative in no case. It was uninfluenced in three cases and reduced in three cases.

Globulin test was negative in no instance. It was reduced in three cases and remained uninfluenced in three cases.

In addition to these cases we have ten others which are as yet incompletely treated. One of these committed suicide after the fourth treatment. Another was taken home after the fourth treatment against advice. He was somewhat improved, but relapsed after two weeks. A third case died of pneumonia after two or three treatments. The other cases are apparently following the course indicated by a majority of the cases already described.

During the past year there have been published numerous cases treated by this method. While on the whole the general feeling seems to be that something is gained by this method there are several pessimistic reports. It is to be regretted that practically all of the published cases are open to serious criticism. In part, the number of treatments administered have been far too few. In part, also, the cases and results have not been given in such form or detail as to allow careful estimate of them. Cotton has a considerable number of very carefully studied cases, so far as I know unpublished. For the most part, I understand, his results do not materially differ from those I have given above, except that he gets a greater number of negative Wassermann reactions.

There are, however, apparently cases which do not get on well under this treatment. Here again reports are inadequate. Advanced cases are apparently inappropriate, but just what the limits of the progress of the disease are which form a contra-indication is not clear. In our handling we have been exceedingly cautious whenever there has been any especial deviation from the typical parietic picture. In practically all of our cases we have begun with small intravenous treatments of salvarsan. We have not used neo-salvarsan. When there are any symptoms out of the ordinary we have given mercury and then salvarsan in very small initial doses. Whether by feeling our way cautiously in this fashion we have avoided seriously unfortunate results it is impossible to say, but up to the present time we have had no bad mishaps. I am convinced, however, that until we have had much more experience than we have at the present time, it would be particularly unwise to treat cases of paresis in an indiscriminate or routine way. On the other hand, if the treatment is given with care as to the case itself, and as to the technique, it is apparently reasonably safe.

The details of the method have been fully described and published by Swift and Ellis and by Ogilvie. These descriptions are easily accessible and need not be described here.

I should like, however, to emphasize that the treatment can not be carried out well without the co-operation of a properly equipped laboratory. Furthermore, it can not be trusted safely in the hands of a person unable to give the painstaking attention to minute details necessary in the preparation of the salvarsan and the serum.

Finally, it is also essential to be in co-operation with a laboratory in which the Wassermann test is done in a standard way.

MINUTES OF QUARTERLY CONFERENCE

DECEMBER 4, 1914.

Minutes of the conference of State hospital superintendents and representatives with the State Hospital Commission, held at the Capitol in Albany, December 4, 1914.

Present—

Commissioners MORGAN, MAY and PARKER.

Dr. AUGUST HOCH, Director of the Psychiatric Institute.

Dr. WALTER G. RYON, Medical Inspector, State Hospital Commission.
Utica State Hospital, HAROLD L. PALMER, M. D., Medical Superintendent.

Willard State Hospital, ROBERT M. ELLIOTT, M. D., Medical Superintendent.

Hudson River State Hospital, CHARLES W. PILGRIM, M. D., Medical Superintendent.

Middletown State Homeopathic Hospital, MAURICE C. ASHLEY, M. D., Medical Superintendent.

Buffalo State Hospital, ARTHUR W. HURD, M. D., Medical Superintendent.

Binghamton State Hospital, CHARLES G. WAGNER, M. D., Medical Superintendent.

St. Lawrence State Hospital, RICHARD H. HUTCHINGS, M. D., Medical Superintendent.

Rochester State Hospital, EUGENE H. HOWARD, M. D., Medical Superintendent.

Gowanda State Homeopathic Hospital, CLARENCE A. POTTER, M. D., Medical Superintendent.

Long Island State Hospital, ELBERT M. SOMERS, M. D., Medical Superintendent.

Kings Park State Hospital, WM. AUSTIN MACY, M. D., Medical Superintendent.

Central Islip State Hospital, G. A. SMITH, M. D., Medical Superintendent; M. B. HEYMAN, Assistant Superintendent.

Manhattan State Hospital, WILLIAM MABON, M. D., Medical Superintendent.

Mohansic State Hospital, ISHAM G. HARRIS, M. D., Medical Superintendent.

Dannemora State Hospital, CHARLES H. NORTH, M. D., Medical Superintendent.

E. S. ELWOOD, Assistant Secretary State Charities Aid Association.

Dr. C. J. PATTERSON, Troy.

Dr. R. B. LAMB, Troy.

Dr. W. L. RUSSELL, Medical Superintendent, Bloomingdale Hospital.
 Dr. GEORGE S. AMSDEN, Assistant Physician, Bloomingdale Hospital.
 Dr. JOSEPH W. MOORE, First Assistant Physician, Matteawan State Hospital.

Dr. THOMAS W. SALMON, National Committee for Mental Hygiene.
 Mrs. ANNIE DEVEREUX MILLS, Manager, Binghamton State Hospital.
 ALLIE A. ROGERS, Manager, Kings Park State Hospital.

JOHN WILLIAMS, Secretary, State Industrial Board.

H. M. POLLOCK, Ph. D., Statistician, State Hospital Commission.

A. L. BROCKWAY, Architectural Adviser, Department of Efficiency and Economy.

The Conference was called to order at 11.15 A. M., by the Chairman of the Commission, Hon. Andrew D. Morgan.

Dr. PILGRIM: Mr. Chairman, before we begin the formal proceedings I should like to say a word.

As most of those present know, this is the eighty-fifth anniversary of the birth of Dr. John B. Chapin, so long connected with the State service in New York as Superintendent of the Willard State Hospital for the Insane.

I move, therefore, that a committee be appointed to consist of the superintendent and ex-superintendents of the Willard State Hospital to draft suitable resolutions on this occasion to be presented to Dr. Chapin.

Dr. MABON moved an amendment to the effect that the resolutions be incorporated in the form of a telegram to be transmitted to Dr. Chapin during the course of the day.

This amendment was accepted by Dr. Pilgrim, whose motion was then adopted unanimously.

The CHAIRMAN appointed as committee, Drs. Elliott, Pilgrim, Macy and Mabon.

The CHAIRMAN announced as the first order of the day the report of the Committee on Recommendations made by the Commissioner of Efficiency and Economy regarding methods of accounting in the hospitals, chairman, Dr. Mabon.

Dr. MABON: Mr. Chairman, ladies and gentlemen—As I understand it the committee was appointed to consider not only the forms for official accounting in the hospitals but also those in ward use in the hospitals and in general administrative work. It consisted of three superintendents and three stewards, with the auditor of the Commission and two representatives of the Commissioner of Efficiency and Economy. They held one committee meeting shortly after the first conference and considered some matters and then referred them to a sub-committee. This sub-committee has held three meetings and has gone over a great mass of material. They submitted this material to the full committee, yesterday, and the work that had been recommended by the sub-committee was adopted by the committee appointed by the president of this conference.

We also had a conference with Mr. Winters, Deputy Commissioner of Agriculture, regarding forms for farm accounting which had been prepared in accordance with the recommendations recently issued by the Department of Agriculture through the State Hospital Commission, and certain forms will be recommended for that also.

The committee would simply report progress and ask that it be continued, as there is a great deal of work to be done in classifying the forms now in use. These will include also the blanks in connection with the Department's and hospitals' dealings with the Civil Service Commission, with the Bureau of Deportation, with the Agricultural Department and between the Commission and the hospitals proper. The subject of classifying the forms in the medical administration, financial administration, etc., will also be taken up.

We therefore report progress and recommend that this committee be continued, even after the final report is made up so that additional forms from the different branches, as they come up, may be referred to it.

On motion of Dr. Pilgrim the report of the committee was accepted and it was continued.

The CHAIRMAN announced that owing to the absence of Mr. A. L. Brockway, Architectural Adviser of the Department of Efficiency and Economy, the second paper on the program must be postponed until afternoon. He announced the reading of a paper illustrated by charts on "**The Treatment of General Paresis by Salvarsanized Serum,**" by Dr. GEORGE S. AMSDEN, Assistant Physician, Bloomingdale Hospital.

Dr. AMSDEN then read his paper, which was profusely illustrated by charts. (Dr. Amsden's paper will be found in a separate portion of the BULLETIN).

Discussion of Dr. AMSDEN's paper:

Dr. HOCH: From the clear presentation of Dr. Amsden's work, as well as from other observations which have been made in this line, it appears that this form of treatment is, to say the least, encouraging, and certainly deserves to be taken very seriously. The results obtained in some of Dr. Amsden's patients are indeed striking. Of course we know that it is difficult to judge of an improvement in a disease which is prone to remissions as general paralysis is, and all of us here have seen enough of so-called cures in various diseases hailed without adequate basis. I need only mention the antiparalytic serum to recall to your mind the rather extravagant claims in regard to the treatment of general paralysis which have, like many others, fallen into oblivion after the first flush of enthusiasm. But the present treatment of general paralysis has a very different theoretical background from many other more purely empiric attempts. I take it that Dr. Amsden's attitude toward this treatment is a very open-minded one, and it is quite plain from what he has said that he regards it as decidedly in its experimental stage.

I was glad to see that Dr. Amsden emphasized the necessity that such work be done by a trained serologist. A new promising treatment like this is apt to be undertaken in many quarters in a rather slipshod way, which, of course, would not be really helpful for a thorough understanding of the situation. It is plainly not a treatment which at this stage should be undertaken everywhere, irrespective of equipment, by men who are not thoroughly trained. It is with this in mind that, although I had for some time concluded to have this treatment carefully tried at the Institute, I wished to wait until we had a well equipped serological department. I felt that we had no right to undertake such work at this stage of its development if it had to be done by a man who also had many other clinical duties, and whose chief interest lay in other directions. In Bloomingdale this was different. Dr. Amsden himself had devoted much time to serology and was therefore eminently qualified for just this kind of work. I waited, therefore, until I could find a man who would be able to do serological work, not only in routine fashion, but also in a way in which only a man can do it who has a thorough theoretical background fitting him for research work as well. We have now been able to secure such a man, and are therefore ready to begin with the treatment. The establishment of this new department, of course, is also the reason why we are now in a position to do the Wassermann tests for the hospitals all over the State, after we have been able to perfect a suitable method for the transportation of specimens.

In looking over the present situation of the salvarsan treatment of general paralysis, we find that evidently the intravenous injection is not promising. Certainly Oppenheim, for example, is quite pessimistic. Dreyfus is somewhat more hopeful. But there is no doubt that results with the Swift-Ellis method, such as have been reported by Dr. Amsden and others, are more directly promising. It is interesting that quite recently Ogilvie has spoken in favor of an intraspinal treatment which differs from that of the Swift-Ellis. In his method the salvarsan is put into the serum after the latter is taken away from the body, and therefore without previous intravenous injection. In this way he is able to gauge the dose better than can be done in the Swift-Ellis method. He claims that he obtains better results with this new method than with the Swift-Ellis procedure, and that he has seen some cases in which the patient was benefited after the Swift-Ellis method had failed. There is, of course, this to be said about such treatment: As Dunlap has pointed out again recently, general paralysis is a disease, not only of the nervous system, but of the entire body. For this reason we should not like to miss in the treatment of the disease the injection of salvarsan into the general blood current. The Swift-Ellis method provides for this, but the Ogilvie method does not. It is therefore possible that a combination of the intravenous treatment with the Ogilvie treatment in the intervals may be resorted to later.

It is plain that many questions like these can be settled only by careful, painstaking, and long continued work, and it is precisely the report of cases such as these which Dr. Amsden has analyzed so well which will help, when once accumulated, to form safe conclusions.

Dr. RUSSELL: One of the great difficulties in treating cases with salvarsan is the expense of the treatment, and it may be of interest to state that the maximum amount spent by us for salvarsan in any of these cases was \$42.00. Five of the cases here reported have left institutional care entirely. Three are carrying on business successfully, while the other two are in such circumstances that they do not require to occupy themselves in this way although they are well enough to do so. The cost after all is rather small considering the results obtained. The individual doses cost considerable and the labor costs a good deal since much work has to be done in each case. The total, however, has, in our experience, not been excessive.

Commissioner PARKER: How many cases of this kind have you treated altogether at Bloomingdale?

Dr. RUSSELL: We have treated the seven here reported and there are ten others now under treatment.

Dr. MABON: Dr. Russell brings up a point of interest to the State hospitals. There are occasionally patients coming to us in the early stages of paresis, whose friends are willing and have the means to provide the salvarsan. In view of the fact that the laboratory at the Institute is now being equipped, it might be well for the men at the different institutions to get some knowledge of the technique so that in a few selected cases this work could be undertaken, and, if so undertaken, there should be some general plan so that for comparison of treatment the basis would be the same. I have no doubt we could look to the Institute for assistance in the matter. I also feel that in certain cases which, clinically at least, show hope for improvement, the State should furnish the amount required for the salvarsan when the friends are unable to do so.

Dr. HURD: We have had somewhat similar experiences in the cases at Buffalo. I can not say that we have had a recovery, but we have had some cases improve and some remissions. Whether these have been on the whole more numerous than the remissions experienced in similar cases of paresis before the salvarsan treatment was inaugurated, as has been mentioned by some observers, we do not feel that we have had a large enough number of cases yet to determine. One of our patients is at home; another is at home much of the time, and could be all of the time if his family were willing to risk the possible upset by making the change. But we, as other hospitals, have had in the past years before salvarsan was used, numbers of instances where cases of paresis, going home, returned to business for a longer or shorter period. We would be interested to know the experiences of other hospitals as to the frequency of improvements, and the duration thereof, of any cases treated by salvarsan.

As regards supplying the salvarsan, we get the necessary funds, whenever we can, from the friends of the patients. In favorable cases where we think we would be justified in meeting the expense, and the friends can not pay, the State Hospital Commission, so far has been very generous and has denied the hospital no expenditure of money for salvarsan as we required it.

Dr. PILGRIM: At Poughkeepsie we have treated only seven cases and in three cases there has been very marked improvement. Like Dr. Hurd, in the majority of cases we have induced the friends to supply the funds for the purchase of salvarsan, but in one or two cases this has been supplied by the State Hospital Commission. I think this is a very important matter to consider, for if we can send out 25 or 30 per cent in an improved condition, even a considerable expenditure for the purchase of the drug would seem to me to be justified.

Drs. Macy, Palmer, Hutchings, Howard, Ashley, Somers, Elliott, Potter, Harris, Heyman and Patterson reported that no experiments of value had been made in their institutions.

Dr. RYON: I was much interested in listening to Dr. Amsden's paper and in the report of the results obtained at Bloomingdale and also at Buffalo and different places. Dr. Fletcher did the work at Buffalo and great improvement was noticed in the cases referred to to-day by Dr. Hurd. It seems to me we have such a large number of cases of general paresis admitted to the State hospitals that it would be well for us to take this subject in hand and make studies, such as are here reported, in every hospital. Of course the expense in cases of this kind will amount to something, but as has been stated in connection with them, where the friends have money they should be asked to advance it for the purchase of the drug. I do not think their refusal to do so should deter us from following this treatment throughout the State, and each institution should have a trained man to carry on this vital work. At several of the hospitals we have excellent pathologists at the present time although in some of the hospitals the men are not as efficient in this line of work as in others. It seems to me that the man selected for this work should have special instruction and training under the serologist at the Institute.

Dr. HOWARD: Would there be any sense in massing the suitable cases for experiment somewhere where the man who did know how to do the work well was stationed? I feel confident that no patient's relatives would hesitate in consenting to his transfer to a given hospital if they could feel that there was any prospect of relief from the terrible disease we are considering. It seems to me that the most promising way to get at this problem would be to select suitable cases and transfer them to a hospital where a man would be located of a type who could do this work well. I throw this out as a suggestion which I believe is worthy of consideration.

Dr. MABON: I appreciate Dr. Howard's position, but I feel that for the benefit of each hospital some one member of the staff should be trained to do this work which is growing in importance and which should be taken seriously at the institution where the patient is located. The point I wish to emphasize is that only suitable cases—early cases—should be selected, those offering some hope of benefit. Another point has well been made by one speaker, that the return to the community of patients who have gone out, far more than over-balances the mere cost of the treatment.

Dr. PILGRIM: I agree with Dr. Mabon. I should be sorry to see Dr. Howard's suggestion adopted. I do not think we should designate any special institution to treat these cases. We should all do our very utmost by training our own men under Dr. Hoch. There should be no excuse for any institution not being included in a work of this character which they should all be able to do under proper guidance.

Dr. WAGNER: Mr. Chairman—I am unable to add to this discussion very much at this time. We have made very little and limited use of salvarsan up to the present time, for it has been rather an expensive line of treatment, and I have no definite results to report. But I believe we should make use of this treatment and that provision should be made to cover the cost even if it is a considerable figure.

Dr. SOMERS: I would like to ask Dr. Amsden one question. I am not clear as to the theory of the treatment of syphilis by the intraspinal method; whether the effect is chemical, that is to say due to the arsenic, or whether the injection is for the purpose of raising the number of anti-bodies. Should the therapy be considered chemical or provocative?

Dr. AMSDEN: I do not know that that question has ever been answered satisfactorily. It is beginning to be rather plain, however, that whatever the effect is, it is not alone due to the arsenic itself, but rather to the combination of arsenic with the blood in some form which takes place while the salvarsan is in the system, or while it is being artificially salvarsanized in vitro. I think it is rather a chemical action and not an anti-body or provocative action.

Dr. SALMON: I would like to ask Dr. Amsden if any control experiments have been made to ascertain whether the number of cells is reduced by the injection of serum which does not contain salvarsan; that is, what is the effect of replacing spinal fluid with normal serum?

Dr. AMSDEN: That is an open question. It is a question which I have tried to get men in the State hospital service to investigate. It is apparently true that drainage will to a certain extent reduce the number of cells in the spinal fluid. The injection of blood serum alone into the spinal canal has been said, also, to have some beneficial effect. I can not speak of this with accuracy, but I have seen it mentioned here and there, but I do not think that any careful observations have been made in such cases.

Dr. HURD: I would like to ask Dr. Amsden one question. According to some writers, the most striking thing in the use of salvarsan in syphilis of the nervous system, has been the marked reduction of the pain in tabes. Have you had any experience with salvarsan in this disease?

Dr. AMSDEN: I am very sorry that I have not had a chance to treat any cases of tabes. We have had cases of tabo-paresis, but I have had no experience with tabes. However, Ogilvie has had a good many and he says that uniformly the pain is reduced; so that, for that reason alone, the treatment is well worth while.

Dr. HOCH: Isn't that in the intravenous treatment too?

Dr. AMSDEN: I can't answer that.

Dr. HOCH: I think Dreyfus says this.

Dr. HURD: I think Dr. Sachs has reported a number of cases of this kind in the *Journal of Mental Science*.

At the close of the discussion Chairman Morgan expressed on behalf of the Commission its thanks to Dr. Amsden for favoring the conference with such an interesting and instructive paper and giving the conference the benefits of the treatment which he has employed at Bloomingdale.

Dr. RUSSELL: I wish to express my own thanks as medical superintendent, for the privilege which has been afforded us of being here to-day. It is the first time in the history of the hospital where, so far as I know, the privilege of presenting our work here has been granted and I hope that our contribution has been of sufficient interest to encourage the conference to ask us again.

RECESS.

The afternoon session was called to order by Chairman MORGAN at 2.30.

The Chairman announced that a representative of the Combusto Company of New York would be granted a few minutes to explain the device manufactured by his company, and which it was claimed would by the combustion of gases in hospital ranges and elsewhere, bring about a reduction of from 25 to 30 per cent in the coal used.

Mr. TIBBITTS of the Combusto Company then addressed the conference. He explained the nature of the apparatus and claimed that it would effect a saving of 25 to 30 per cent on the coal burned in ranges. He offered to install the apparatus in any of the hospitals for experimental purposes.

Mr. A. L. BROCKWAY, Architectural Adviser for the State Architect and, later, adviser for the Department of Efficiency and Economy, then addressed the conference. Mr. Brockway outlined briefly the scope of the work, the plans for new buildings on the State hospital grounds, and also for the reconstruction and extension of existing buildings. After this preliminary outline he spoke as follows:

State hospital buildings are especially utilitarian. The more I study

them, the more the analogy with manufacturing plants grows upon me. When you stop to think of the economic burden thrown upon the thrifty people of this State, not only in the maintenance of its dependents, but in construction and reconstruction, the utilitarian side must be given consideration.

In taking up the economic problem, I call attention to the fact first, that as we take up the fourteen institutions for the insane in the State we have a condition which I am rather inclined to think we would all criticise from this point of view: They don't represent in any way or shape a complete group plan; they don't represent a general layout such as we would make to-day, if we were to solve the problem of making an institution of the size of any one with which I am familiar. In many cases these buildings have been inherited from the old county institutions and from year to year, owing to the difficulties of getting legislative appropriations, they have been added to piecemeal by succeeding officials in charge, so that really, so far as I can find, Mohansic is the only institution, the only one having a comprehensive plan made for it before anything was started. Now, I don't mean this in a critical or fault-finding spirit, it is merely a fair illustration of what has taken place in municipalities and State and national governments in matters of this kind. Consequently, the condition of some of the architectural problems is very much exaggerated on that account. You have all kinds of buildings of all characters planned by different architects holding the office of State Architect, showing their individual taste and judgment: consequently, in considering any of the institutions as official, economic problems, it has got to be done with due regard to these conditions and not to what any one of the superintendents in charge of the institutions would have if he had a clean sheet to start with. Now, just as an illustration: many have two power plants, while at Utica Dr. Palmer has a power house that has been extended through the necessity of adding one boiler after another, until he has at the present time ten boilers with a total of 1,250 horse power, whereas if you started to-day you would place there two units only and with a different type of boilers. In other words, it is a very hard problem to take ten boilers with their ten fires and get the efficiency in power or heat that you could get with a different equipment. Central Islip has two power houses over a mile apart. One makes alternating current, the other direct current; if there is a surplus in one, it can not be used in the other.

Now, I am perfectly well aware that you are not responsible for all this. I am not speaking in a fault-finding spirit, but we are trying to make a study and to review these conditions, to get them together in order to see what is best to do with each one of the institutions towards putting them into shape and making provision for the future.

We should know first of all the percentages of the several classes of patients. This we should know so we can determine upon a typical unit. By a typical unit, I mean a building which by the consensus of

opinion of superintendents is of about the right average size—will contain the right number of patients, not too many or too few for economical administration; that unit to be multiplied by as many as necessity may require in accommodating the total number of patients. From what I have seen, generally speaking, the chronic cases form a fairly definite proportion of the patients. Can an average typical unit not be planned—not one to cover every case, but one for a certain class of cases? Is it not possible to determine upon a type available everywhere and thus do away with the multiplication of different kinds of buildings and thereby save a lot of time now required of the managers, the superintendents, the State Hospital Commission and the State Architect in getting the buildings under way? I would like to have a statement on that point from any one who differs from that theory.

Dr. PILGRIM: I feel sure we all agree with what Mr. Brockway has said in favor of a unit scheme of buildings, such as is followed by manufacturing plants; that we could have something of that kind which if carried out consistently between the State Hospital Commission, the State Architect and the managers of our State hospitals would save an immense amount of time. At the present time it takes long enough in the construction of our buildings, but that is not all; we must get the approval of the Governor, of the Comptroller, of boards of managers; the Lord knows there is enough time lost in the legitimate action pertaining to our hospital work and if we can get rid of other annoyances it will greatly facilitate not only the construction work itself but it will vastly simplify administration so far as the superintendent and his staff is concerned.

Mr. BROCKWAY: I would like to know what the opinion of you gentlemen is as to whether in solving this architectural problem these institutions should be limited to 5,000 patients. Hospitals with that number seem to get along pretty well; seem to be pretty well managed. Is there any radical dissent from that general proposition, that possibly 10,000 may be quite within the bounds of reason as the capacity of a State institution properly planned and developed.

Dr. MABON: If we can carry out the plan here proposed by Mr. Brockway, if we can arrange for groups of individual types, the size of the entire establishment is not of so much importance. We should certainly get by this plan a great saving of time in the development of all preliminaries in the construction and growth of our hospital plants. If you keep to these different types of buildings we will not have to consider the numbers. I approve this scheme of buildings for different types; one for reception, one for suicidal cases, one type for semi-disturbed, one for disturbed, another for untidy, another for hospital or infirmary group, and so on. But there is a difference of opinion in this audience to-day as to the proper size of institutions, and if we get into a discussion of that question it will be interminable.

Mr. BROCKWAY: What I am trying to do this year in con-

nection with the State Hospital Commission and the State Architect is to formulate data as to State hospitals in such a way that your groups when approved will show the best development, each one of them of a certain maximum capacity, in order that the committees of the legislature may be impressed with the fact that those represent certain uniform units that will apply anywhere; that a building for chronics, or for acute cases or other types will be determined by the State Hospital Commission or board of managers as being the most advantageous, so that year by year appropriations can be made consistently, intelligently and thoroughly towards an ultimate complete whole, and not just a patch here and a patch there, and a dab somewhere else.

The first important detail in the architectural problem and the one which Mr. Pilcher the State Architect has laid down in the course of consultation is this: that we would recommend no construction except fire-proof construction. Now, a cement floor covered with a battleship linoleum seems to be the successful thing. It is very quiet and it is easy to take care of, and it is perfectly possible to employ the time of the patients as you do now rubbing the floors up and down. The cement floor is not satisfactory unless you have something laid on it.

In the course of my study of this subject, I have developed one idea, that is, a modification of a type of roof construction so as to get the greatest efficiency out of some of the existing buildings. The peaked roof has been replaced by what I call a solarium story. The word "solarium" was used because of its strict definition, although the term "third story" might be used, it is not so striking a term as solarium, especially as patients will use this as a day room or sitting room. For that purpose the amount of glass was developed to the maximum. However, it is absolutely unimportant whether it is used as a solarium or whether it is used in the same subdivision as the lower floor. Instead of waste space in the attic which is also a constant fire menace, it is replaced by a floor of absolute utility. At Ward's Island we are taking off an old pitched roof and it means one additional floor, or an increase of fifty per cent in the building without covering up any more ground. The land there is very valuable and an increase in the buildings is quite an important object to be gained. Likewise in a fire-proof plant you are not confined to two stories—especially for some classes of patients. With elevators you can go up four stories or five stories or more as the problem expands.

Here is the other group (indicating) A, B, C, and D, at Ward's Island, showing the possibility of adding a solarium or third story to them and thereby increasing the possibility of the number of patients in the building. That is simply a suggestion which has been worked out to utilizing existing buildings.

The next step was the building for the acute class—a two story building with a sloped roof. In place of that we have developed a flat roof and the water from the roof is carried in iron pipes inside the

building instead of outside. Overhand gutters or box gutters are simply sources of expense resulting from the constant freezing, and you are sure to have trouble from icicles and all that sort of thing. The flat roof never gives that trouble if properly done. Based upon the method of estimating cost by cubic contents, the flat roof on a building of that kind, means that a larger number of patients could be accommodated and that the per capita cost would be reduced markedly below what the average cost of construction has been during several years past, as shown in several other institutions. Last year a bill was passed carrying an appropriation of two million dollars for buildings to accommodate only two thousand patients. That meant that the construction cost for each patient accommodated was one thousand dollars. The Governor vetoed it. Now if it is possible to increase the accommodations of these buildings, particularly at Central Islip where there is a great expanse of this kind of roof, it would mean that the accommodations in these buildings could be markedly increased and at a per capita cost of not to exceed \$250. There is an architectural problem: the utilizing of existing buildings so far as possible before undertaking the development of this unit system that I have spoken of.

At Ogdensburg, Dr. Hutchings has the same kind of roof on his magnificent type of buildings, and if at that hospital we could apply this plan of reconstruction it would mean a great increase of patients under the same roof without covering any more ground.

Now I am not going to take any more time. I am just going to make a suggestion in closing. There are many more details that we might discuss; but I want to say this: I believe that the development of these institutions, the determination of the detail of the units should be the result of the general co-operation of all of you gentlemen as superintendents. I believe that the recommendations for any one institution should start from you as a group. In other words you men as commanders of these armies, on the job, each conversant not only with your own institution but, in a general way, conversant with the others, and in conjunction with the State Hospital Commission—it seems to me you are the proper ones to take the initiative in the development and the growth of the various institutions. I believe that you are the men who know the most about it, and I believe that in any future development of the institutions you ought to be organized, divided into committees and sub-committees, and have the thing started that way.

Dr. MABON: It seems to me the most important thing that Mr. Brockway has brought up is the necessity of a study of the situation in New York City. Until that is made we can not discuss this subject—certainly not at all intelligently—until that has been clearly understood. I think the survey should be made. In the past, providing accommodations for the insane has been mere patchwork; one man has recommended one thing and another has condemned it.

The State hospital system has grown to such proportions that we must have some definite policy in regard to construction. I would move that a committee of three hospital superintendents from different parts of the State be appointed by the chair to confer with Mr. Brockway and to go over the whole situation with him, with a view to making a report and also having in mind, what can be done to provide the necessary accommodations for the insane; whether through a bond issue or by sufficient appropriations to be raised by a direct tax or something that will do away with the necessity of giving piecemeal allowances for buildings. Until we can get some definite plan of this kind we shall have, in the future, the same trouble we have had in the past.

Superintendent MABON's motion was then carried unanimously.

Commissioner MAY: I think I represent the entire sentiment of those present in expressing thanks to Mr. Brockway for his preliminary study of this subject which is one of so much importance, and in outlining a scheme of future provision for the insane, which is so badly needed.

Dr. SALMON of the National Committee for Mental Hygiene presented a paper: "**The Care of the Insane Under State Boards of Control.**" (This paper is printed in another portion of the BULLETIN).

Chairman MORGAN: I am sure you have all been greatly pleased and that we have all been greatly interested in listening to Dr. Salmon's paper: it certainly has been very interesting to me and I think it is well worth some discussion. These matters are of great importance and I hope the superintendents and others present will express their opinions and views on the matters that he has referred to in this paper.

Mr. ELWOOD: Mr. Chairman—There seems to be some doubt in the minds of many as to whether the Board of Control proposed for the State of New York contemplates including under its jurisdiction the State hospitals for the insane. From the accounts I have thus far seen in the press it seems to me that the State hospital system is not to be included in this new plan of institution administration but rather that the Board of Control be given authority over those institutions now inspected by the State Board of Charities and the Fiscal Supervisor. I believe the State Charities Aid Association will vigorously oppose a plan to vest the control of the State hospitals and all other charitable institutions in one central board, and will certainly oppose giving such a board permanence by constitutional provision. We have just appointed a committee on constitutional convention which includes Mr. Canfield, who has been chairman of our standing committee on the insane for several years, Mr. Choate, who you will remember was president of the last constitutional convention, and Colonel Sanger, who was formerly chairman of the State Hospital

Commission. This committee will consider changes in the constitution to be recommended to the convention which have bearing upon the State hospitals and the State charitable institutions. They have just begun to look over the field. I think the hospitals are very fortunate in that Mr. Elihu Root will probably be the president of the constitutional convention because he has already expressed himself as favoring a bond issue for new State hospitals and institutions for the feeble-minded.

I am sure we shall be very glad to co-operate with this body in promoting such changes in the constitution as seem desirable, and shall be glad to receive in return your advice and recommendations.

Dr. HURD: I trust that in view of the near approach of the date of the constitutional convention some effort may be started on the part of superintendents and hospital managers and all interested in the welfare of the insane to undertake a definite plan of work, and if the Commission approves, that copies of Dr. Salmon's paper should be distributed at the earliest possible moment. I want to express my appreciation of the value of it and my belief in the beneficial use that may be made of the facts contained therein. Dr. Salmon refers in his paper to the extraordinary results attained in Maryland in improving conditions in the institutions for the insane in that State and in establishing a definite system of State care. All this great reform was accomplished in three years, and I want to speak in commendation of what the Maryland board accomplished in the face of obstacles and difficulties. By the very great force of their organization and with public opinion back of them, the Board of Lunacy accomplished what some people thought almost impossible.

Dr. RUSSELL: This is a very important period in the whole development of the State system for caring for the insane and in working out the great problems associated with it, and it seems to me that we ought to get together—all those interested in the subject—and try to shape things in the right direction. I could not help but be struck by the strong argument presented by Mr. Brockway in connection with the architectural questions involved in the care of the insane; the way in which he approached the subject and the strength with which he presented the economic view; but I am sure everyone here must have felt that many misconceptions and fallacies were interwoven with what he was saying. Many of these he could not know about. One thing he suggested should be followed by this conference. He said that the members of the conference should shape what the policy should be. He as an architect acknowledged that he could present the subject from an architectural standpoint and from an economic standpoint. He believed that his suggestions could be put before the legislature in a sensible and accurate way. Unfortunately our arguments and point of view don't appeal so readily to the plain man, because he doesn't understand them. He does understand the economic argument. It is necessary for us to try to formulate the

scientific and humanitarian view point as closely and convincingly as possible. When it is understood, it is bound to prevail.

I believe a committee of this conference should be appointed to co-operate with the committees of the State Charities Aid Association and of the Psychiatric Society, and with all others interested to help shape what is to be done in this great constitutional convention. As there is quite a strong tendency toward the establishment of a board of control, I think it would be very useful—for there must be strong advocates of the establishment of such system—if some one should present the arguments before this conference in order that we might see what can be said in advocacy of the proposed legislation, just as Mr. Brockway presented the economic side of institutional development. We would then know what the arguments were and would know how to meet them. I think we should unite with all other organizations who are likely to have a hand in shaping things and I would like to see this conference organized on this question in such a way that the rest of us could come in and help. The members of the conference know best what is needed.

Dr. PILGRIM: It seems to me that this is one of the most important questions we have had to meet in a very long time. I quite agree with Dr. Russell in believing that there is a strong feeling in the minds of the laity and members of the legislature in regard to the establishment of a board of control, and I think we will need all the strength we can possibly muster to combat these ideas. It will be a most unfortunate thing if such a board is established, and if the institutions for the insane should get mixed up with the penal institutions. I received a letter from Dr. Blumer of Rhode Island a day or two ago, and I think you may be interested in hearing this extract from it: "A year or two ago the State provided for a Board of Control which has so mixed up the affairs of the hospitals with those of institutions for the criminals that things are now in a disgraceful condition and an effort will be made this winter to establish a State Board of Insanity which will have exclusive jurisdiction over the insane." It seems to me that it is our duty to do everything we possibly can to leave our status unchanged, and if we can't leave it unchanged we should limit the changes just as much as we possibly can. The effort to unite us with the institutions for the feeble-minded and epileptics might not be a bad thing, and I think there are some arguments in its favor, but so far as being under the jurisdiction of a board of control which would control the reformatories, State hospital and charitable institutions generally, it would be a step backward and we should combine to combat the movement.

Commissioner MAY: I want to second heartily the remarks made by Drs. Russell, Pilgrim and others. The importance of a careful consideration of this subject at this time can not, in my opinion, be overestimated. I think there is no question but what the future interests of the insane are now at stake, and that the existence of this

system which has been built up as a result of so many years of experience and earnest thought is threatened by the establishment of the proposed board of control. I agree with Dr. Pilgrim that there are many reasons why it might be well to combine the hospitals with the institutions for mental defectives and others, under one management; but if you go so far as that in that direction, you at once approve of the idea of the State Board of Control for the remaining institutions; and these are so few that most any one would agree that if you go so far you should include all types of institutions. And for that reason I think that Dr. Pilgrim's first idea of opposing any change in the present methods of management is the correct one; that if changes are to come, they should be kept down to the lowest point.

There is no question but that a decided effort will be made at this constitutional convention to provide for the establishment of a board of control. I don't think that we needed the evidence presented by Dr. Salmon to convince ourselves that such a change will be unwise. But the information he has brought together will be of inestimable value in showing the public at large what a mistake this change would be.

I think with Dr. Hurd that we should have that paper in such form so as to make it generally available, and that it should be widely distributed. I think we can have it published in the BULLETIN, and have a very large number of Bulletins printed, and distributed all over the State.

We should have a definite plan in mind as to what we shall do when the convention takes up this question and just what we shall present to the delegates of that convention.

I think that the chairman of our Committee on Legislation should make a recommendation that a committee be appointed at this time for the purpose of co-operating with the various other organizations mentioned here, which are all interested in this one subject.

Dr. WAGNER: I desire to express my hearty agreement with what has already been stated, and particularly with the contents of Dr. Salmon's paper. I think he has covered the ground very fully, and has made it very clear that a board of control is not what we want in this State. I think that through the committees that have been already suggested or through some other means arrangements should be made to bring all the facts to the attention of the delegates to the constitutional convention in the strongest possible way. If this can be done, it will result very greatly to the advantage of the State and very much to the interest of everybody at this conference.

Dr. PILGRIM: Dr. Mabon suggests that that report will come when the legislative committee reports. The question now is of appointing a committee to work with the State Charities Aid Association in matters coming up before the constitutional convention.

Dr. MAY: This subject is the particular one which the committee in question has had under consideration and I think it might be well to receive their report at this time.

Dr. MABON, chairman of the committee, then presented his report as follows:

Report of Committee on Legislation.

To the Conference:

The Committee on Legislation begs to report that it held a meeting at No. 1 Madison Avenue on November 24, 1914, which was attended by all the members of the committee, and Mr. E. S. Elwood, assistant secretary of the State Charities Aid Association, was present by invitation.

The Committee at this time is not prepared to make a report, but would invite suggestions from the Commission, hospital superintendents, managers and others interested in legislation concerning the insane. These suggestions might well be presented to the Chairman of the Committee during the next thirty days.

The Committee believes that every effort should be made to secure the appropriation of the balance of the board money for the year ending September 30, 1914, as well as the board moneys for the current year. The appropriations made for maintenance are insufficient to maintain the present standards and the hospitals suffered very materially the latter part of last year by reason of the failure of the legislature to appropriate all the board moneys as had been the custom in former years.

The Committee is clearly of the opinion that the constitution of the State of New York should continue the State Hospital Commission, but should more clearly define its power. The name should be changed to the State Hospital Commission instead of the State Lunacy Commission. The qualifications of the members of the Commission should be stated. It is the belief of the Committee that a board of control is uncalled for and that such a procedure, if it comes before the constitutional convention, should be strongly opposed.

The Committee further feels that it is the duty of the managers and officers of each State hospital to interest the delegates to the constitutional convention from their hospital districts in all matters affecting the welfare of the insane, and to present to the delegates their views opposing the board of control.

The Committee suggests that a committee be appointed to co-operate with committees of other charitable organizations, especially with the committee of the State Charities Aid Association on the constitutional convention.

The Committee feels that some provision should be made in the constitution for a bond issue for additional accommodations for the insane.

Finally, it feels that it would be well for the conference to consider the advisability of placing under the care of the State Hospital Commission all mental defectives.

Respectfully submitted,

WILLIAM MABON,
CHARLES G. WAGNER,
CHARLES W. PILGRIM,
WILLIAM A. MACY.

Commissioner MAY: I move that the Committee on Legislation which made this report and which is the constant committee on legislation of this conference be authorized to represent this conference in co-operation with the other boards which have been here referred to. The motion was seconded and adopted.

Dr. MABON: I would like the co-operation, assistance and advice of all those who are present in matters of this kind; also to have the superintendents present here to-day call the attention of the managers to this committee and to its action and to ask for their assistance. Further to bring to the attention of influential people in their community the matters which are so important to the well-being of the insane in this State. It seems to me we can not get too much public support in a matter of this kind. This might be a proper time for us to hear again a paper on "The Parting of the Ways." We are at the parting of the ways now and we must have the support of everyone interested in the work, and it means work on the part of everyone. Without this support we can't accomplish much, but with it we can accomplish a very great deal.

Dr. HUTCHINGS: I heartily agree with the remarks made by Dr. Mabon and Dr. May with reference to this matter. I have one suggestion to make to render it easier for the superintendents and the boards of managers to reach the matter directly and to place it before those who would pass on it at the constitutional convention. If we had at hand some information of a specific character in the form of arguments of plain statements of facts which could be used in discussing these matters or placing them before those we wish to reach, it would be a great deal of help; and I would suggest a leaflet or a circular be issued by our Committee on Legislation inviting all the arguments and statements of facts on the whole or a part of Dr. Salmon's paper, and such other information as can be got together on this subject in order that we may be fortified, and we can circulate these among those mentioned in the discussion here to-day.

Dr. MABON: I might add to that, that several persons not connected with the State hospitals but very vitally interested in their welfare and among them persons who are also interested in the care of the feeble-minded and in the administration of State institutions generally, will meet next week to discuss matters under this head. It is the purpose of the chairman of this committee and also of the

Psychiatric Society to present as much as possible to that committee, and, if deemed wise, to submit it later to the different hospital superintendents. That is one reason why this committee made the suggestion that it would be glad to receive suggestions from the hospital superintendents and others so that we might get these ideas all included in the pamphlet suggested.

Dr. SALMON: Another body is the State Medical Society. In the early days of State care the society exerted an immense influence. Lately they have shown no signs of interest in our matters. Still, the personnel of the society has changed so much recently that it may be possible to get the influential aid of this society and add it to that which has already been outlined. The extract from Dr. Blumer's paper read by Dr. Pilgrim, with reference to the proposed reform of the Board of Control in Rhode Island, brings that directly to mind. If you change the title from Rhode Island to New York the whole matter might very well be used in this State.

Dr. PILGRIM: I think the lack of interest shown by the State Medical Society of late years in our affairs is a great compliment to the State Hospital Commission. When the insane were badly treated they were interested and did fine work, but now their activities are no longer regarded by them as necessary.

Dr. MABON: As to the State Society, they are divided into several districts which have different members on the council. The superintendents might exert their influence with the members of the different councils in this matter so that when the right time arrives the society could act from information derived from their council members.

Dr. HOCH: I will ask Dr. May how soon this reprint from the BULLETIN will reach us.

Dr. MAY: We will ask the printing plant at Utica to set it up and distribute it at once, if this is possible, and I think it is.

Dr. RYON: I was interested in Dr. Salmon's remarks concerning the activities of the State Medical Society in the past. Of late years it has been very difficult to get even single members of the medical profession to visit the hospitals to any great extent. It would be a good scheme for the hospitals to use every effort to get them interested, to get them to visit the hospitals, to have them there to see the institutions and the work that is being done in them. The work in the institutions for the insane is very little known to the medical profession at large, very few are familiar with it. Where it is possible, and where the meetings of the county societies can be so arranged, I believe the superintendents of these localities should invite the county societies to meet at the institution.

Dr. MAY: I do not think there will be any difficulty in getting the State Medical Society or the county medical societies interested in this general subject. I think, with Dr. Pilgrim, that their interest in past times has been due to the fact that there was great necessity for their assistance.

The Committee on Legislation should prepare something on legislation so that we could bring it up in some very specific form.

Dr. MABON: The State Medical Society convenes in April and the Constitutional Convention also opens in April.

Dr. HARRIS: We could work with the county societies and various medical societies and this information could be disseminated very broadly in this way.

Dr. RUSSELL: Can anyone here mention the names of any of the advocates of the State Board of Control idea? I would like to have the names of some of them.

The resolution to refer this matter to the committee of which Dr. Mabon is chairman was then seconded and adopted.

The CHAIRMAN then announced as a committee to consider the suggestions of Mr. Brockway with reference to the perfection of a uniform type of buildings for each class of patients, Drs. Mabon, Pilgrim and Ashley.

On motion, the conference adjourned at 5.00 p. m.

NEWS OF THE SERVICE DURING 1914.

CHANGES IN THE PERSONNEL OF THE MEDICAL SERVICE.

UTICA.

Dr. Ward W. Millias was appointed medical interne November 29, 1913.

Dr. Harry A. Miller was appointed medical interne May 1, 1914.

Dr. Robert F. Zimmerman was promoted May 1, 1914, to the position of assistant physician.

Dr. Wilber S. Newell was appointed medical interne October 12, 1914.

Dr. Julius E. Haight resigned as assistant physician November 30, 1913, to enter private practice at Fishkill, N. Y.

Dr. Eugene A. Hammond, medical interne, resigned April 30, 1914, to enter private practice at New Berlin, N. Y.

Dr. William Hale, medical interne, resigned July 22, 1914, to enter private practice at Utica, N. Y.

Dr. Wilber S. Newell, medical interne, resigned December 16, 1914, to enter private practice at Clayville, N. Y.

Dr. Harry A. Miller, medical interne, resigned December 16, 1914, to enter private practice at Earlville, N. Y.

Dr. Ward W. Millias, medical interne, resigned December 31, 1914, to take a position at the New York State Hospital for the Care of Crippled and Deformed Children, at West Haverstraw, N. Y.

WILLARD.

Dr. Chester Waterman, senior assistant physician, resigned September 30, 1914, to enter private practice.

Dr. Charles G. Squires, appointed medical interne June 10, 1914, resigned October 31, 1914, to enter private practice.

HUDSON RIVER.

Dr. S. Wallace Todd resigned as medical interne January 31, 1914, to engage in private practice in Slingerlands, N. Y.

Dr. William C. Porter, assistant physician, was promoted to senior assistant physician February 9, 1914.

Dr. Archibald W. Thomson resigned as assistant physician June 30, 1914, to engage in private practice in Poughkeepsie.

Dr. Samuel F. Mellen, assistant physician, died July 15, 1914. Dr. Mellen had served the State for twenty years, in Willard, Kings Park and this hospital.

Dr. J. Melvin Taylor, medical interne, was promoted to assistant physician, August 6, 1914.

MIDDLETOWN.

Dr. Arthur S. Moore, assistant physician, was promoted to senior assistant physician, February 10, 1914.

Dr. Nelson W. Thompson, assistant physician, resigned June 25, 1914, to take a position as superintendent of Flower Hospital in New York City.

Dr. Samuel B. Pond was promoted from medical interne to assistant physician September 1, 1914.

Dr. Harry S. Blossom was promoted from medical interne to assistant physician September 1, 1914.

Dr. Ray W. Moody was promoted from medical interne to assistant physician September 1, 1914.

Dr. Walter A. Schmitz, of Philadelphia, was appointed medical interne November 1, 1914.

Mrs. Mary L. Manning, R. N., matron, resigned September 21, 1914.

Miss Mary M. Norris, R. N., was appointed matron October 6, 1914.

BUFFALO.

Dr. Herman F. May was promoted from assistant physician to senior assistant physician February 10, 1914.

Drs. William L. Howell and Parker G. Borden were promoted from medical internes to assistant physicians April 1, 1914.

BINGHAMTON.

Dr. Fred G. Benton, medical interne, resigned May 9, 1914, to accept an appointment as assistant physician at the Manhattan State Hospital.

Dr. Wm. A. Andrews, medical interne, resigned May 13, 1914, to accept a position in the Soldiers' and Sailors' Home at Bath, N. Y.

Dr. Arthur D. Marsh, medical interne, resigned June 30, 1914, to enter private practice.

Dr. Blinn A. Buell was appointed assistant physician September 22, 1914.

ST. LAWRENCE.

Dr. E. F. Cooley was appointed medical interne on January 14, 1914.

Dr. A. G. Lane was promoted to senior assistant physician on February 11, 1914.

Dr. Alice Baxter was promoted to senior assistant physician on February 11, 1914.

Dr. Samuel Ginsburg was granted a leave of absence of one year on July 1, 1914.

Dr. Alice Baxter was granted a leave of absence of one year on July 1, 1914.

Miss Katherine Gay resigned her position as field worker on September 8, 1914.

Dr. M. C. Newkirk reported for duty as medical interne on October 24, 1914.

Miss Josephine A. Callahan, Principal of the Training School for Nurses, resigned her position on November 30, 1914.

ROCHESTER.

Dr. Abraham Terk, medical interne, resigned July 1, 1914.

Dr. Leon N. Wilbur, medical interne, resigned August 1, 1914.

GOWANDA.

Dr. Daniel H. Arthur, superintendent, resigned March 12, 1914, and has opened a private sanitarium in Pleasantville, New York.

Dr. Clarence A. Potter, first assistant physician, was promoted to medical superintendent July 9, 1914.

Dr. Carl von A. Schneider, senior assistant physician, was promoted to first assistant physician October 1, 1914.

Dr. Paul M. Champlin was appointed clinical assistant December 13, 1914.

MOHANSIC.

Dr. William J. Jones, resigned his position as medical interne August 31, 1914.

KINGS PARK.

Resignations.

Dr. Samuel Tietze, assistant physician, resigned on January 13, 1914.

Dr. Bernard Feldstein, assistant physician, resigned on May 31, 1914.

Dr. Delmer D. Durgin, assistant physician, resigned on May 31, 1914.

Dr. Richard G. Eaton, assistant physician, resigned on May 31, 1914.

Dr. Helena B. Pierson, assistant physician, resigned on May 31, 1914.

Dr. R. Grant Barry, medical interne, resigned on May 31, 1914.

Appointments.

Miss Helen E. Martin, special attendant, research assistant, February 8, 1914.

Dr. Delmer D. Durgin, assistant physician, reinstated on September 27, 1914.

Dr. Helena B. Pierson, assistant physician, reinstated December 1, 1914.

Promotions.

Dr. Russell E. Blaisdell from assistant physician to senior assistant physician, February 10, 1914.

Dr. Harry A. Stechel from medical interne to assistant physician, January 14, 1914.

Dr. Helena B. Pierson from medical interne to assistant physician, January 16, 1914.

LONG ISLAND.

Dr. Robert J. Childers, medical interne, resigned April 20, 1914.

MANHATTAN.

Appointments.

Dr. William H. Hawkins, medical interne, January 1, 1914.
 Dr. John S. Richards, assistant physician, April 20, 1914.
 Dr. Fred G. Benton, assistant physician, May 10, 1914.
 Dr. Morris M. Sherman, assistant physician, May 18, 1914.
 Dr. Francis E. Weatherby, medical interne, September 8, 1914.
 Dr. H. Valentine Wildman, jr., medical interne, September 11, 1914.
 Dr. Fred J. Conzelmann, medical interne, September 11, 1914.
 Dr. Lewis E. Williams, clinical assistant, October 1, 1914.

Resignations.

Dr. William J. McNerney, medical interne, March 12, 1914.
 Dr. William H. Hawkins, medical interne, April 18, 1914.
 Dr. Nils O. Lundell, medical interne, April 19, 1914.
 Dr. Eugene N. Boudreau, medical interne, May 10, 1914.
 Dr. Amos E. Barton, assistant physician, May 17, 1914.
 Dr. Edmund J. Barnes, assistant physician, July 1, 1914.
 Dr. Fred J. Conzelmann, medical interne, July 27, 1914.
 Dr. Fred G. Benton, assistant physician, September 5, 1914.
 Dr. James H. Huddleson, jr., medical interne, September 30, 1914.
 Dr. Frederick C. Devendorf, medical interne, December 2, 1914.

Promotions.

Dr. Abraham Skversky to medical interne, January 1, 1914.
 Dr. Ernest M. Poate to senior assistant physician, February 10, 1914.
 Dr. Arthur M. Phillips to senior assistant physician, February 10, 1914.

CENTRAL ISLIP.

Appointments.

Dr. Alfred T. Wood, assistant physician, November 1, 1913.
 Dr. Ferd D. Streeter, medical interne, December 4, 1913.
 Dr. Charles L. Watson, medical interne, December 18, 1913.
 Dr. Roy L. Leak, senior assistant physician, July 3, 1914.

Resignations.

Dr. John J. Harrington, assistant physician, October 1, 1913.
 Dr. Joseph W. Moore, senior assistant physician, October 15, 1913;
 (to accept position of first assistant physician at Matteawan State
 Hospital).

Promotions.

Dr. Frank Hinkley, from assistant physician to senior assistant
 physician, March 1, 1914.

Dr. Ralph G. Reed, from assistant physician to senior assistant physician, March 1, 1914.

Dr. William Leavitt, from assistant physician to senior assistant physician, March 1, 1914.

PSYCHIATRIC INSTITUTE.

Dr. Sterne Morse was appointed assistant in serology April 1, 1914.

Dr. Glenn E. Myers, assistant physician, was granted a leave of absence on August 10, 1914, for a year.

Dr. Walter L. Treadway was appointed assistant in psychiatry July 21, 1914, through an arrangement with the United States Public Health Service, the latter detailing Dr. Treadway to work at the Institute.

NEW HOSPITAL FEATURES: CONSTRUCTION, ADMINISTRATION, THERAPEUTIC OCCUPATION, ETC.

UTICA.

A special feature of the hospital work during the current year was the comparatively large number of patients paroled from the institution. The total number of paroled patients was 438. The largest number of persons on parole at any one time was 82 men and 34 women, and the smallest number 64 men and 22 women, with a daily average of nearly 100.

With a deep sense of appreciation of the objections to promiscuous parole of patients from an eugenic standpoint, it has been the policy of the hospital management to make a searching and careful investigation of the patient's environment before considering the parole, and it has been the practice of the hospital of late to discharge patients only after the expiration of a six months parole. A careful review of the paroled cases shows that a large percentage of them have been kept under close observation, not only reporting at the hospital in person, but reporting by letter, or through some qualified relative, friend, or the family physician. Through the medium of our transportation nurses, who are constantly going over the hospital territory, we are also able to keep in fairly close touch with those who fail to report either monthly or semi-monthly as directed.

This new feature of the hospital work has proved very beneficial not only from the viewpoint of the patient, but as a financial economy.

During the year, no new construction work or extraordinary improvements have been authorized by the Legislature. However, a great deal of work has been accomplished at the Marcy site, especially with a view of developing the acreage of tillable land, and to this end a large amount of ditching and fencing has been accomplished. This work has furnished diversified occupation not only for our farm colony of about fifty patients, but for a large party of patients who are taken daily by auto truck to the farm colony during pleasant weather.

WILLARD.

The steamboat dock, which was badly damaged by severe gales and high water during the past two years, was almost entirely rebuilt of concrete. The public dock, adjacent to the hospital property, was rebuilt early in the summer by the Department of Public Works.

Two new concrete silos have been constructed at the new cattle barn at The Grange.

A notice was received from the State Commissioner of Health early in March, that small-pox was epidemic in the western part of New York. On account of the danger of infection it was considered advisable to vaccinate all the patients and employees. One case of the disease occurred in the vicinity, but there were no outbreaks in the hospital.

Particular efforts for re-education of the insane, especially dementia præcox cases, are continued in the school for patients, where cases selected by the physicians receive training under the direction of a teacher assisted by nurses.

There were five cases of typhoid fever early in the year. Several additional cases developed at the Hermitage (the infirmary for men), during October and November. There were three cases of diphtheria during the year.

Three men and nine women graduated in the Training School for Nurses in the class of this year. The Senior and Junior classes of the training school each has twenty-one pupils enrolled. The number of graduates in the service at Willard is thirty-six men and fifty-four women, seventeen of whom are registered with the State Board of Regents. Thirteen women graduates are known to be engaged in private nursing, and eighteen men and nineteen women are employed as nurses in other State hospitals or State institutions, or in general hospitals.

HUDSON RIVER.

The two extensions to the Reception Hospital are now in use and supply greatly needed accommodations for disturbed patients. The continuous baths have been moved from the main ward to this extension, permitting disturbed patients to be completely isolated from the more comfortable. The room formerly used as a continuous bath room supplies a much needed dining room for recently admitted patients not well enough to go to the larger dining room.

For twenty years the hospital has had a large smoking room on the male service in the administration building and its use has been so thoroughly enjoyed that a similar room has been established at Inwood. One of the larger basement rooms was finished, painted, and a cement floor installed, furnishing very satisfactory accommodations for recreation for patients and employees when off duty.

Another year of the staff "study club" justifies its continuation. It affords opportunities for a more detailed study of individual cases

and groups than is possible in the regular staff meetings. One evening each month is devoted to this purpose.

An out-patient department was begun last June. Each week a physician from the hospital conducts the evening clinic for nervous and mental diseases in connection with the Poughkeepsie Board of Health. The attendance is satisfactory and a night unfilled is a rare occurrence.

MIDDLETOWN.

A new power plant has been constructed at an expense of \$60,000, besides coal sheds; and land has been purchased for a new railroad switch. Provision has not yet been made for the boiler house equipment.

The dining rooms for 535 patients at the west group are completed but not occupied.

BINGHAMTON.

No new construction on a large scale has been undertaken at the hospital during the year, but some small buildings have been erected and important repairs have been made throughout the institution. At the blacksmith shop an addition doubling its capacity will greatly increase its usefulness, and at Pine Camp two small structures replacing sleeping tents have added to the comfort and attractiveness of the camp. On a number of the hospital buildings new gutters have replaced old ones that were leaking badly; in Broadmoor, new floors have replaced some that were decayed, and in the building formerly used as a blacksmith shop a number of stalls for horses have added materially to the capacity of the stable. In the engineering lines many repairs have been made and estimates have been submitted to the State Hospital Commission for general overhauling of the steam lines. In the electric department contractors are at work installing an entirely new electric lighting system in place of the old one which has become obsolete after twenty years of service. The hospital painters have made great improvement in the acute hospital, Fairmount, and at the chronic building, Broadmoor, by painting the interior walls. This work is steadily progressing, but as funds are limited it will probably be some time before the painting is finished. Our masons have been at work repairing plastered walls and tile floors in the various buildings and have laid concrete floors in some of the basements; sidewalk construction and brick paving have also occupied these mechanics a considerable part of the time. Besides these improvements, plans were completed last spring for the erection and equipment of a large addition to the hospital laundry, but the re-appropriation of the funds necessary for this work was vetoed by the Governor so the construction could not be undertaken. Plans are now completed for the erection of a new building for 300 women patients of the chronic class, and also for a new boiler and smoke-stack; as funds are available for these improvements it is expected that construction work will be commenced in the early spring of 1915.

The general administration of the hospital has been conducted on practically the same lines as in recent years. The principal supplies are obtained on contracts made by the Purchasing Committee, and practically all other requirements are met by purchases made by the steward after submitting estimates to the State Hospital Commission and receiving approval thereof. Efforts have been made to increase the supplies obtained from the hospital farm by extending cultivation of garden and farm lands to the greatest possible degree, but some difficulty has been experienced in securing fertilizers of suitable kind and in sufficient quantity.

Efforts have been made throughout the year to provide occupation of a therapeutic character for patients whose condition warranted such employment. Besides useful occupations of various kinds many patients have been encouraged to engage in exercise calculated to benefit their general health. This idea has been carried further during the latter half of the year than ever before by the employment of a physical instructor who has regular classes in physical culture in the assembly hall daily from 9 to 11 in the forenoon and from 2 to 4 in the afternoon. The instruction given in these classes has been of marked benefit to the patients participating.

ST. LAWRENCE.

Four 400 horse power watertube boilers were installed at the boiler house, replacing six old 150 horse power boilers. In connection with this the following buildings were connected with the main boiler plant, eliminating the local plants which burned anthracite coal: Curtis Hall, Eastwood, Inwood, St. Vincent's Chapel, Farm Cottage and farm barn.

Continuous baths were installed in the Flower Building.

GOWANDA.

The large veranda of ward 7 was enclosed, providing suitable sleeping porch and a place of recreation for the hospital patients during the winter season.

A new Dey automatic time register for outside employees was installed in the administration building.

A Cyphers electric incubator and brooder was purchased for the farm. A food cooker was installed at the piggery, and an Oakes and Burger boiler in the milk house. A new "Climax H" ensilage cutter was purchased. Bath rooms were installed at the farm cottage for employees and the patients' bath room remodeled, and the interior of the farm house repainted.

The refrigerators in the general kitchen were remodeled, old wood ceilings and partitions being replaced with cement.

The steel ceiling in the laundry was replaced with lath and plaster, the wash-room plastered and the interior of the laundry painted.

Three new horizontal tubular boilers of 150 horse power each were

installed in the power house, and a new boiler in the basement of the staff house.

A new fire escape was constructed at the farm cottage, and 292 feet of fire hose purchased.

MOHANSIC.

Stables and barns at the Menges cottage were repaired. New sheds for wagons, road roller and carpenter were constructed. Several hundred feet of macadam road was constructed. Two sludge basins were built.

KINGS PARK.

A new system of water heating is being installed, whereby all the hot water will be heated at a central plant instead of as now by means of individual heaters in the different buildings. The use of exhaust steam for heating water will be continued, but as it will be utilized at a single central plant instead of numerous individual heaters, it will be possible to effect considerable economy, as such steam will be supplied to the central plant at about one-half the back pressure now required.

Two additional wells, about 500 feet in depth, have been drilled to increase the water supply.

A number of the wooden cottages have been repaired. The most important repairs having been relaying floors, replastering walls and the installation of steel ceilings. In this way these cottages have been made fairly habitable for a number of years to come.

Four electric elevators have been installed in Groups II and III, delivering food from the kitchens to the wards.

Some time since \$80,000 was made available by legislative appropriation for the construction of new buildings at this hospital, but as yet definite plans have not been formulated as to the manner in which it is to be utilized. A proposed plan, however, is to utilize such appropriation for the erection of solariums and other extensions to existing buildings rather than in the erection of new buildings, as it is obvious that the money will thus go farther in increasing the hospital capacity, owing to the saving possible in connection with service facilities, such as water, sewage, electrical connections, steam, etc.

A new telephone system is gradually being installed, which is of the modern battery type instead of the old magneto type. The main feature of the new system is its central energizing equipment, power being derived either from a motor-generator set or from a storage battery.

The installation of the Cryer Vacuum System, with special valves in connection with the steam heating equipment of the hospital, has now been completed. This system is expected to effect considerable economy in the use of coal, as it allows circulation of steam at a greatly reduced pressure, while an added advantage is increased radiation from the radiators, due to the partial vacuum contained in them.

At the outlet of each radiator, the valves are arranged so as to be almost entirely shut off at all times except when water of condensation accumulates in the pipes, when the valves open to allow the water to escape, but they then automatically are almost entirely shut off again.

Owing to the failure of the Legislature to re-appropriate in the usual way the full amount of the board moneys for the use of the State hospitals, we were threatened, in the latter part of May, with a shortage of nearly \$20,000, to be made up by savings during the remainder of the fiscal year, which was, as indicated, from June to September inclusive. This saving was accomplished mainly by withdrawing all commutation for board and room, by suspending all amusements and many of the occupational classes, by abolishing five positions on the medical staff and a number on the force of attendants and other employees. It was then hoped that with the beginning of the new fiscal year, the work thus suspended would be resumed and the positions which had been abolished would be restored, but the legislative appropriations for the coming fiscal year, as published later, have been so small that the prospect is rather that further retrenchment will be necessary unless additional appropriations should be afforded by the Legislature during its next session.

LONG ISLAND.

Ground was broken for the erection of a new power house in September, for which \$125,000 was appropriated, including equipment.

An electric therapeutic outfit has been installed.

The Long Island State Hospital property and buildings were by deed formerly transferred to the State of New York August 10, 1914.

All ward doors have been re-hung to conform to fire regulations.

A fire escape is being erected at the rear of the executive portion of the main building.

Two Siamese steamer connections are being installed to insure proper pressure in the interior stand pipes.

A roadway is being constructed at the rear of the main building for city fire service.

Blue prints showing exits have been placed on each ward.

Eight emergency fire boxes are being installed on the wards.

The cement floor of the main kitchen has been repaired and a gas range has replaced the former coal range. Steel ceiling has been allowed for the kitchen.

Linoleum has been laid over the old floors in the hospital wards.

Farming operations at Creedmoor continue in successful operation.

MANHATTAN.

The new Nurses' Home, which is expected to accommodate 107 nurses, is nearly completed, and it is expected that it will be ready for occupation in the spring.

The coolers of Kitchens Nos. 1, 2, 3 and staff house have been re-insulated with sheet cork and ammonia coils installed.

The fire alarm system is nearly completed and it is expected that it will be ready for operation shortly.

The old ice house located at the north end of the island, has been overhauled, a new floor installed and other repairs made, so that this building may be used for storing potatoes and other vegetables during the winter.

New cement floors have been laid in the east stable, vegetable cellar and in the vegetable room of Kitchen No. 1.

CENTRAL ISLIP.

New concrete fire house completed and occupied.

Concrete coal pocket constructed at the North Colony power plant. Roofs and verandas of groups B and C were re-constructed.

Extension made to dining room of group A.

A portion of old ice house was fitted up for steamfitter's shop, and a new floor for second story put in.

Hot water heaters were installed in groups G and H to supply the entire groups.

Railroad platforms at groups D, E and F were inclosed.

A sun room was constructed on veranda of ward D-2 for convalescent patients.

A steam line was installed in plumber shop in place of the old stoves which were rather unsafe.

Cement floors were laid in the cellars of wards 1 and 3, group I.

Interior of Hoffman staff house was painted.

Twelve 24 inch manhole covers with brick openings were installed on the sewage lines to allow easy access in case of stoppage.

Tile floor was laid in serving room of group B.

A cement receptacle for storing kerosene and gasoline in tanks was constructed and connected up.

Window guards of group I were reinforced.

Concrete steps and cement walks were constructed and laid around new group M.

The making of new lawns and terraces around groups S and M was continued during the year.

NOTABLE OCCURRENCES: INJURIES, RESCUES, SPECIAL CAPABILITY.

UTICA.

During the year, an exhaustive and extensive investigation of hospital affairs was made by the Bureau of Efficiency and Economy, and on May 25 and 26, a special investigation, particularly of food supplies, was conducted by the Board of Managers, the State Hospital Commission and the Bureau of Efficiency and Economy. The result

of these searching investigations showed that the hospital administration had not only expended the moneys entrusted to it in a careful manner, but that the standard of care prescribed by the Commission for the unfortunate wards of the State had been maintained.

On June 3, 1914, a woman patient, a voluntary case, committed suicide by hanging. Other than this, the hospital has been remarkably free from any serious accidents.

WILLARD.

Three women patients committed suicide by strangulation; two had not previously shown suicidal tendencies. One man committed suicide.

Four cases of sudden death were referred to the coroner. Definite natural causes of death were present in every case, as shown by autopsy.

Four men patients who escaped from the hospital have not been located. All these patients were strong and active and able to care for themselves.

On July 15 and 16, the State Hospital Commission held an investigation into the charges of Federal and State inspectors that certain articles of food unfit for use were being supplied for the patients. The Attorney General conducted the investigation for the Commission, attorneys also being present representing the Department of Efficiency and Economy and the hospital. The reports of the inspectors were not substantiated.

The exercises of the twentieth annual Field Day were held September 26, 1914. The parade of the fire department led by the hospital band, the games and contests for patients and employees were witnessed by over 1,600 patients, a large number of the employees, and about 2,000 visitors who came in automobiles, carriages and by train from various localities in the district. The booths, containing fruit, vegetables and manufactured articles were especially noteworthy features of the occasion. The Thirteenth Separate Company of Geneva, N. Y., gave an exhibition drill. They were accompanied by their band which added enjoyable music to the occasion.

The annual meeting of the Committee on Mental Hygiene and After Care of this hospital district, was held at the hospital October 2, 1914. The committee has twelve members residing in various parts of the district, who give personal attention to the welfare of many patients paroled at home, or discharged to the care of relatives.

During the year 91 men and 56 women were received by transfer from the Manhattan State Hospital.

A patient named Michael Towell, located at the farm cottage called "Hillside" eloped early on the morning of December 15. He became exhausted from wading through snowdrifts and his fingers were frozen before he was rescued. Amputation of some of the fingers became necessary subsequently.

The hospital steamboat Nautilus, disabled by the breaking of the rudder chain, ran aground during a storm December 29, 1914. The boat, which fortunately was not badly damaged, was rescued and towed to the harbor by a tugboat and crew from Watkins, N. Y., the following morning.

HUDSON RIVER.

A recently employed woman attendant carelessly left the ward door open and an excited woman patient escaped, succeeded in getting to the attic and to a dormer window and on a gutter on the sloping roof. It was not possible to rescue her except from above. Several male employees got upon the roof and by means of a rope lowered one of their number. This employee was able to guide the woman patient along the gutter to a window through which women attendants effected her return. All this was done at an elevation of over sixty feet, and constituted one of the most heroic occurrences in this hospital.

BINGHAMTON.

The ordinary routine of the hospital has been somewhat disturbed during the year by accidents and attempts at suicide on the part of the patients. The accidents, with the exception of three, were not of a serious character. In several instances fractures resulted from falls, but in all cases where such injuries occurred prompt recovery followed appropriate treatment. The exceptional cases were the following: One woman patient who had been but a few hours at the summer camp, fell into the river and was drowned; another case was that of a man patient who fell while being bathed and received an injury in the region of the cervical vertebra which resulted in death; the third case was that of a man who developed pneumonia immediately after coming to the hospital and died. At the autopsy it was found that he had a fractured rib and that this injury appeared to have been the cause of the pneumonia. It was believed that the injury was received before he came to the hospital. In all of these cases full investigation was made by the coroner who exonerated the hospital from all blame.

Throughout the year many instances of praiseworthy conduct on the part of employees occurred in the regular performance of their duties, but in surveying the record it does not appear that any of these instances were of a sufficiently notable character to be singled out for special remark. The fact, however, that with an average of nearly 2,400 patients in the hospital, many of whom were possessed of suicidal ideas and in some instances were determined to end their existence, but a single instance of actual suicide occurred, is conclusive evidence that close attention to duty was given by the nurses and attendants employed on the wards. In the instance where suicide occurred the patient was a woman who was thought to have recovered her normal mental state and was considered practically ready to return

home; she was allowed parole of the hospital grounds and made use of an opportunity which she found while unobserved, to suspend herself from the limb of a tree near the acute hospital, by means of a scarf, and, although found within a short time after the act was committed, life was extinct. In this case the coroner exonerated the hospital from all blame.

GOWANDA.

On June 12, 1914, a male patient, subject to severe heart attacks, fell into an artificial pond near the nurses' home and his dead body was soon after found floating on the surface. A post mortem examination, conducted by the medical examiner from Buffalo, showed the lungs entirely free from water and the examiner concluded that death occurred from heart disease before the patient fell into the pond.

A woman patient, while on parole at her home, was reported as having committed suicide by inhaling chloroform May 17, 1914. This patient had been on parole about two months, had never manifested suicidal tendencies either at home or at the hospital; but she had been accustomed for many years to inhale chloroform for the relief of neuralgia.

On August 6, 1914, George Green, tailor at the hospital since June 15, 1903, died suddenly while on duty.

MOHANSIC.

February 5, 1914, patient Nolan confessed that he murdered Charles J. Wiley, July 4, 1913. After due trial he was sent to the Matteawan State Hospital, upon an order of the court.

February 25, 1914, an employee fell from a ladder while pruning trees and fractured the right humerus at the anatomical neck.

July 20, 1914, an employee was assaulted by a patient with a coal shovel, inflicting slight scalp wounds.

KINGS PARK.

Fifty-nine escapes of patients are recorded as having occurred during the year. Of these, 29 were returned prior to the expiration of thirty days. Two were discharged at the end of thirty days, but were subsequently recommitted. Seven were discharged to the custody of their relatives or friends. One reached home, was not returned to the hospital by the relatives, and later committed suicide while at home. Three were granted a parole in the custody of their relatives, and were still on parole at the end of the fiscal year. One was a voluntary case and need not have escaped, as he could have obtained his release merely by making formal written application. The remaining 16 were discharged to the custody of themselves, not having been heard from since their escape. In none of the last mentioned cases, fortunately, had any aggressive or dangerous tendencies been observed, so that it could hardly be said that the fact of their being at large constituted a menace to public welfare.

Five attempts at suicide were made by patients during the year but, fortunately, none were successful.

In three cases rather violent assaults were made by patients, twice upon attendants and once upon another patient. The resulting injuries were in none of these cases very severe.

One patient climbed to the roof of Building D and walked about in a confused way, heedless of danger. An attendant, Richard Gilmer, at considerable risk to himself, succeeded, with the assistance of another attendant, Chester Mitchell, in bringing the patient down from the roof.

Jules Sanctuary, an employee in the engineer's department, fell from a tall cherry tree, sustained a fracture of the spine with severe injury to the cord, and died on July 19, 1914.

Andrew Cooney, the assistant engineer, suddenly died October 27, 1914. By order of the coroner, an autopsy was held on the following morning, and the cause of death was found to be acute cardiac dilatation.

LONG ISLAND.

A Sicilian patient secured a large needle and inflicted superficial wounds on three employees and the attending physician before he could be restrained.

MANHATTAN.

February 26, a colored patient broke two panes of glass and attempted to cut her throat, inflicting a small incised wound. She also put several pieces of glass in her mouth. The charge nurse, at the risk of her life, prevented the patient from killing herself. In doing so, however, she received an incision about two inches in length, between the thumb and first finger of the right hand. She was also bitten on the forearm. An attendant who came to her assistance was bitten on the forearm and received a cut on the third finger of the right hand.

March 18, a patient attempted suicide by strangulation. He tied a sheet around his abdomen and around his neck and was attempting to tighten the latter when discovered.

March 26, a patient mutilated the back part of his mouth with the handle of his tooth brush.

April 21, a patient when going out to dinner raised one of the windows and before he could be stopped jumped out. He sustained a fracture near the head of the left humerus and also some contusions in the lumbar region.

April 28, a patient forced the window guard of her room and was afterward found in the Harlem River opposite the coal dock. She was rescued by the crew of the steamer "Wm. L. Parkhurst" and brought to the passenger dock. She was in a state of collapse, but physicians were immediately at hand and every effort was made, but in vain, to resuscitate her.

June 4, a patient while returning from court where her case had been receiving attention, jumped into the river, from the dock at the foot of East 116th street. Dr. F. Ross Haviland, who with a nurse accompanied the patient, jumped into the water and succeeded in saving her life.

June 19, a patient ran out of Camp D, and jumped into the river. She was followed by Miss McHale, night charge attendant, who nearly lost her life trying to rescue her as the tide was very strong. Two men of the Life Saving Station, at the foot of East 100th street, came along in a rowboat and brought the patient ashore.

July 13, a patient who had just been taken from a pack climbed out of the window and ran directly for the river. The attendant, Miss Jacobson, followed the patient into the water, after she had waded up to her chin. The patient made determined efforts to plunge her head under the water, but Miss Jacobson, unaided, finally succeeded in bringing her back to shore.

July 27, a patient committed suicide by strangulation. He tied a strip of his undershirt around his neck and fastened the other end to the upright of the iron bedstead.

August 30, a patient escaped from Ward 56. His body was discovered a few days later in the river.

September 18, a patient was struck by another patient whom he had assaulted. He died the following day. The case was referred to the coroner. An inquest was held and the hospital exonerated from any blame.

CENTRAL ISLIP.

During the year a number of patients made their escape from the hospital. These patients had parole of the premises, and simply wandered away. Substantially all of them were later returned to the institution.

Two suicides occurred during the year; both were men patients who succeeded in their designs by hanging.

A number of minor accidents occurred, consisting of fractures by falling, etc.

One serious injury occurred which resulted in the death of a man patient. This patient, who had parole of the premises, was detailed to carry paper and other rubbish from the Nurses' Home to the incinerator. During a high wind storm a back-draft from the incinerator set fire to the patient's clothing, which resulted in death.

Constant vigilance has prevented fires of any nature throughout the year.

NOTES OF IMPORTANCE ON HABEAS CORPUS CASES.

BINGHAMTON.

But one case of habeas corpus occurred in the Hospital during the year. F. T. S., aged 44 years, admitted February 5, 1914, appeared before Supreme Court Justice George F. Lyon in the Court House at

Binghamton, March 18, 1914. After a hearing Justice Lyon dismissed the writ and remanded the patient to the hospital for further treatment. On June 4, 1914, this patient, who is a lawyer by profession, addressed another petition for a writ of habeas corpus to Justice Lyon, but later requested the Justice to dismiss the writ. There have been no further developments in this case.

LONG ISLAND.

R. V., No. 80029, admitted December 5, 1914, upon properly executed emergency certificate was summarily released upon writ of habeas corpus on the ground that personal service was not made until after the patient was a "prisoner" in the institution. The superintendent's opinion as to the patient's mental condition at the time of the return of the writ was not requested.

M. P., No. 58284, was discharged on writ of habeas corpus.

MANHATTAN.

M. T., No. 60654. Female, admitted April 5, 1912. Writ was served January 8, 1914, returnable on the 9th day of January, before Hon. Justice Guy. Hearing was deferred until Monday, January 12, and on that day patient was again taken to Court under the writ. After examining witnesses the Justice dismissed the writ and the patient was remanded to the Manhattan State Hospital.

W. K., No. 69078. Male, admitted June 11, 1913. Writ was served, returnable on the 14th day of January, 1914. Patient was returned to the hospital and the Court sent Dr. H. Valentine Wildman to interview the patient. Further hearing was adjourned to January 21, and on that day the writ was dismissed and the relator remanded to the Manhattan State Hospital.

F. E. H., No. 73910. Male, admitted February 9, 1914. Writ was served on March 28, 1914, returnable before the Hon. Justice Page on March 30, 1914. Patient was presented in Court on March 30, 1914, and the writ was withdrawn, patient's brother having decided to proceed under Section 94 of the Insanity Law. On April 10, 1914, patient was discharged under Section 94, to the custody of his brother. Condition: Improved. Diagnosis: Alcoholic Psychosis, Acute Hallucinoses.

J. J. McS., No. 31848. Male, admitted March 29, 1909. A writ was served and return made on the 28th day of July, 1914. Patient was taken to the Supreme Court, Part II, before Justice Giegerich in answer to the writ. The case was adjourned for one week on agreement of counsel. On August 4, 1914, the patient was taken to the Supreme Court, Part II, to answer to the writ of habeas corpus which was postponed last week by agreement of counsel. Writ was dismissed after a hearing and the patient was remanded to the custody of the hospital.

On August 18, a petition or motion for the discharge of the patient

under Section 94 of the Insanity Law was returned in the Supreme Court, Part I. The Assistant Attorney General took the affidavit of the physician to the effect that the patient was suffering from a paranoic condition, subject to episodes of excitement, and that during these he was dangerous to others. The Assistant Attorney General advised that it would not be necessary for either the patient or the physician to be present at Court. Patient is still in the hospital.

R. M., No. 31766. Male, admitted April 28, 1909. Writ was served September 29, 1914. Patient was produced in Court and writ dismissed October 1, 1914.

INDIVIDUAL ITEMS.

WILLARD.

Dr. John M. Quirk of Montour Falls, appointed a member of the Board of Managers, April 9, 1914.

Hon. Abram S. Stothoff of Watkins, N. Y., President of the Board of Managers, died at Albany, N. Y., May 13, 1914.

Mr. Joseph Cameron of Hornell, N. Y., member of the Board of Managers of this hospital for several years, died at his home in Hornell, N. Y., December 17, 1914.

HUDSON RIVER.

Governor Martin H. Glynn visited the hospital during the past year.

Professor Artur Schüller, Professor of Psychiatry, Vienna, Austria, was a distinguished visitor to the hospital.

MIDDLETOWN.

There has been no change this year in the personnel of the Board of Managers. Hon. John C. R. Taylor, of Middletown, N. Y., whose term expired December 31, 1913, was re-appointed on the Board of Managers January 1, 1914.

Dr. Nelson W. Thompson, formerly assistant physician at this hospital, now superintendent of Flower Hospital in New York City, was married to Mrs. Mary L. Manning, September 8, 1914.

Dr. Samuel B. Pond, assistant physician, was married October 3, 1914, to Miss Rebecca M. Woodruff.

Dr. Harry S. Blossom, assistant physician, was married October 12, 1914, to Miss Abbe Evelyn Copeman.

GOWANDA.

Mr. Charles H. Felthousen was appointed a member of the Board of Managers February 16, 1914, succeeding Dr. Albert J. Frantz whose term expired December 31, 1913.

Dr. John D. Zwetsch was appointed manager April 9, 1914, succeeding Fred J. Blackmon, who resigned.

Dr. Frederick P. Schenkelberger took a special three weeks' course at the Neurological Institute in March, 1914.

Dr. Percy R. Vessie was given a leave of absence during the month of October, to pursue a special course in refraction at the National Hospital in Washington, D. C.

Mr. Joseph F. Shea was appointed steward October 1, 1914, succeeding Mr. James O. Bennett, who resigned September 30, 1914.

MOHANSIC.

Hon. Andrew J. Shipman was reappointed a member of the Board of Managers.

Dr. William I Sirovich resigned as a member of the Board of Managers and Max Herbst, D. D. S., was appointed to fill the unexpired term.

Dr. H. C. Evarts of the Manhattan State Hospital supplied the position of superintendent for Dr. Harris while he was on a vacation.

BINGHAMTON.

Mrs. Annie Devereux Mills of Oneida, and Mr. J. Arnot Rathbone of Elmira, were appointed members of the Board of Managers of this hospital in March, 1914, the former to succeed Dr. Lavinia R. Davis whose term expired December 31, 1913, and the latter to fill the vacancy caused by the resignation of Mr. Jervis Langdon, the President of the Board.

Dr. Charles G. Wagner, superintendent, attended the Seventieth Annual Meeting of the American Medico-Psychological Association, at Baltimore, Md., May 26-29, 1914.

A regular meeting of the Binghamton Academy of Medicine was held at the hospital on the evening of March 24, 1914, at which papers were presented by three members of the hospital staff.

Dr. William J. Tiffany attended a special course of instruction in advanced pathological work at the Psychiatric Institute, Ward's Island, New York, from October 19 to November 9, 1914.

Dr. Ross McC. Chapman also spent two weeks at the Institute for study, in March, 1914.

KINGS PARK.

Dr. C. Floyd Haviland, first assistant physician, returned to duty after a six months' leave of absence on December 15, 1914. His leave of absence was granted him to enable him to make a survey of the State of Pennsylvania for the Public Charities Association of Pennsylvania, as to the conditions attending the care of the insane in public institutions.

LONG ISLAND.

Mr. Henry R. Chittick, Mr. George E. Brower and Mr. Charles Partridge of Brooklyn, were appointed as members of the Board of Managers in March, 1914.

MANHATTAN.

The following changes were made in the personnel of the Board of Managers:

Hon. Thomas M. Mulry, President, resigned in April and Mrs. Grace Gillette Bird, resigned in October, 1914. Dr. Jacob Oshlag was appointed March 27, 1914, to succeed Dr. Gustav Scholer whose term expired in March, 1914. Hon. Charles V. Fornes was appointed in May, 1914, to succeed Hon. Thomas M. Mulry.

Dr. William C. Garvin, senior assistant physician, was absent for six months taking special courses in psychology and neurology in Europe.

Dr. Fred J. Conzelmann was granted a leave of absence for the purpose of special studies in Europe.

Dr. Sylvester R. Leahy, senior assistant physician, is on an extended leave of absence.

Dr. William C. Garvin, senior assistant physician, was married on February 16, 1914.

Dr. H. Valentine Wildman, jr., medical interne, was married October 6, 1914.

CENTRAL ISLIP.

Mrs. Elizabeth P. Lanehart was appointed as a member of the Board of Managers to succeed Mrs. G. Stanton Floyd-Jones, resigned.

Mrs. Grace G. Dyer was appointed a member of the Board to succeed Miss Mary E. Richmond, resigned.

Rev. William H. Garth was appointed a member of the Board to succeed Mr. Martin J. White, resigned.

At the October meeting, Mr. Martin A. Metzner was elected President of the Board, and Mrs. Grace G. Dyer, Secretary.

Dr. Milton M. Grover, assistant physician, was married to Miss Mabel M. Ketchum at New London, Ohio, on October 28, 1914.

BIBLIOGRAPHY OF THE PHYSICIANS OF THE STATE SERVICE.

UTICA.

SAMUEL W. HAMILTON, M. D., senior assistant physician.

"Some Approaches to the Study of Insanity." Paper read before the Fifth District Branch of the State Medical Society, October 2, 1913; The Utica Medical Library Association, November 3, 1913; and the Oneida Medical Club, January 7, 1914.

"Mental Disturbances in Children." Delivered before the Rome Custodial Asylum Summer School, July 8, 1914.

WILLARD.

WILLIAM H. MONTGOMERY, M. D., senior assistant physician.

"Organic Psychoses of Luetic Origin." A paper read at the meeting of the Seventh District Branch of the State Medical Society, held at Newark, N. Y., September 22, 1914.

HUDSON RIVER.

FREDERICK W. PARSONS, M. D., first assistant physician.

"Public Lecture on Psychiatry," as part of a course in hygiene conducted each Saturday by the Y. M. C. A.

"The Advantages of the New Hospital." Read before the Poughkeepsie Academy of Medicine, February 13, 1914.

MORTIMER W. RAYNOR, M. D., senior assistant physician.

"The Results of Treatment of Cerebro-Spinal Lues by Neo-Salvarsan." Read before Dutchess County Medical Society.

HOWARD P. CARPENTER, M. D., senior assistant physician and pathologist.

"The Laboratory Diagnosis of Syphilis of the Nervous System." Read before Dutchess County Medical Society, April 8, 1914. Published in the *Albany Annals*.

PERCY L. DODGE, M. D., assistant physician.

"The Treatment of Acute Rheumatism." Read before Dutchess County Medical Society.

MIDDLETOWN.

ROBERT C. WOODMAN, M. D., first assistant physician.

"Intra-Spinal Use of Salvarsan." Read before the autumn meeting of the New York State Homeopathic Medical Society.

"Two Cases of Disturbance of the Pituitary with Psychosis." Published in the *North American Journal of Homeopathy* for January, 1915.

BINGHAMTON.

CHARLES G. WAGNER, M. D., superintendent.

Appointed by Governor Glynn as a delegate to represent the State of New York at the Third Annual Meeting, under the auspices of the Chicago Medical Society, of Alienists and Neurologists, Chicago, July 14-18, 1914.

Appointed by Governor Glynn as a delegate to represent the State of New York at the Sixth Annual Meeting of the American Institute of Criminal Law and Criminology, Washington, D. C., October 23, 1914.

EDWARD GILLESPIE, M. D., senior assistant physician.

"Dementia Præcox with Presentation of Cases." Read before the Binghamton Academy of Medicine, March 24, 1914.

WILLIAM J. TIFFANY, M. D., senior assistant physician.

"Pre-Senile Psychoses." Read before the Binghamton Academy of Medicine, March 24, 1914.

ROSS MCCLURE CHAPMAN, M. D., senior assistant physician.

"The Neuroses." Read before the Binghamton Academy of Medicine, March 24, 1914.

ST. LAWRENCE.

R. H. HUTCHINGS, M. D., superintendent.

A course of lectures on Mental Diseases before the Medical Department of Syracuse University, in April, 1914.

Address on "The Investigation of Psychoneurotic Symptoms," before the St. Lawrence County Medical Society on April 7, 1914.

"Abderhalden Reaction in Mental Diseases." Read before the Ogdensburg Medical Society April 21, 1914.

A. G. LANE, M. D., senior assistant physician.

"Prognosis in Insanity." Read before the Ogdensburg Medical Society, December 8, 1914.

A. T. COLNOR, M. D., assistant physician.

"Causes, Symptoms, Course and Treatment of Broncho-pneumonia." Read before the Ogdensburg Medical Society, March 17, 1914.

"Additional Diagnoses, Senile Psychosis in Dotards." Read before the Ogdensburg Medical Society, November 10, 1914.

H. L. LEVIN, M. D., assistant physician.

"Differential Diagnoses of Organic and Psychogenetic Delirium." Read before the Ogdensburg Medical Society, January 6, 1914. Published in the *New York Medical Journal*, March 28, 1914.

C. ROSS MILLER, M. D., assistant physician.

"Modern Treatment of Pulmonary Tuberculosis." Read before the Ogdensburg Medical Society, February 7, 1914.

"Home Treatment of Pulmonary Tuberculosis." Read before the St. Lawrence County Medical Society, April 7, 1914.

H. J. WORTHING, M. D., medical interne.

"Quinin and Urea Hydrochlorid Treatment in Pneumonia;" also a report of a case. Read before the Ogdensburg Medical Society, April 21, 1914.

GOWANDA.

CLARENCE A. POTTER, M. D., superintendent.

"Suggestions Concerning Early Diagnosis and the Methods of Commitment to State Hospitals." Read before the Dunkirk and Fredonia Medical Society at Dunkirk, N. Y., December 16, 1914.

PERCY R. VESSIE, M. D., assistant physician.

"Personal Traits of Darwin." Published in the *Medical Times*, July, 1914.

ANNE E. PERKINS, M. D., woman physician.

"The Human Side of General Anesthesia." Published in the *Trained Nurse*, January, 1914.

"Vertigo." Published in the *Trained Nurse*, May 14, 1914.

"Cerebral Hemorrhage or Apoplexy." Published in the *Trained Nurse*, August 14, 1914.

MOHANSIC.

ISHAM G. HARRIS, superintendent.

Addresses as follows:

"Care and Treatment of the Insane, Past and Present." At Peekskill, N. Y., February 17, 1914; at Brewsters, N. Y., March 17, 1914; at Yorktown Heights, March 19, 1914.

"Rural Hygiene." Before the District Nurses' Association at Yorktown Heights, April 7, 1914.

KINGS PARK.

AARON J. ROSANOFF, M. D., first assistant physician.

"A Statistical Study of Prognosis in Insanity." *Journal of the American Medical Association*, January 3, 1914.

"Mendelism and Neuropathic Heredity. A Reply to Some of Mr. David Heron's Criticisms of Recent American Work." *American Journal of Insanity*, January, 1914; also in Bulletin No. 11, Eugenics Record Office, Cold Spring Harbor, N. Y.

"Social Possibilities of Mental Hygiene." Read before the Associated Physicians of Long Island at the annual meeting on June 6, 1914, at Blue Point, N. Y.

"A Study of Eugenic Forces." Read before the Eugenics Research Association at the Annual Meeting held at Columbia University, June 19-20, 1914.

"The Causes of Insanity." Read before a lay audience at the 23d Street Y. M. C. A., New York City, July 19, 1914.

"A Study of Brain Atrophy in Relation to Insanity." *American Journal of Insanity*, July, 1914; also in *STATE HOSPITAL BULLETIN*, August, 1914.

"Preliminary Report of a Higher Scale of Mental Measurements." *STATE HOSPITAL BULLETIN*, November, 1914.

"Prevention of Insanity." Read before a lay audience at the 23d Street Y. M. C. A., New York City, December 14, 1914.

CHESTER L. CARLISLE, M. D., senior assistant physician.

"The Translation of Symptoms into their Mechanism." Read before the American Medico-Psychological Association, at the Annual Meeting held in Hotel Belvedere, Baltimore, Md., May 26-29, 1914.

WILLIAM C. SANDY, M. D., assistant physician.

"Reviews and Notices." In the *Journal of Nervous and Mental Disease*, issues of February, May, June, July and September, 1914.

MANHATTAN.

WILLIAM MABON, M. D., superintendent.

Address before the Alumni Association of the Manhattan State Hospital Training School for Nurses, on April 15, 1914.

"What Can be Done for the Insane." Address delivered before the Peoples Institute at Cooper Union, on December 18, 1914.

GEORGE H. KIRBY, M. D., director of clinical psychiatry.

"Principles Underlying Ergotherapy and Re-education of the Insane." Read before the Ward's Island Psychiatric Society, February 9, 1914.

"Dementia Præcox, Paraphrenia and Paranoia." Read before the Ward's Island Psychiatric Society, April 20, 1914. Published in the *American Journal of Insanity*, October, 1914.

"Epilepsy with Cessation of Grand-Mal Attacks." Read before the Ward's Island Psychiatric Society, May 18, 1914.

"Clinical Studies in Benign Psychoses." (In collaboration with Dr. August Hoch). Read at the meeting of the American Medico-Psychological Association, Baltimore, May, 1914.

"Eugenics." Address to the Manhattan State Hospital Alumni Association, June 17, 1914.

WILLIAM C. GARVIN, M. D., senior assistant physician.

"Camp Life and Open Air Treatment of Certain Psychosis." Read before the Ward's Island Psychiatric Society, February 9, 1914.

"Diagnosis of General Paralysis." Read before the City Hospital Alumni Association, New York, December 16, 1914.

PHILIP SMITH, M. D., senior assistant physician.

"Medical and Surgical Procedures in the Insane." Read before the Ward's Island Psychiatric Society, February 9, 1914.

"Dementia Præcox Complicated by Syphilitic Brain Disease." Read before the Ward's Island Psychiatric Society, April 20, 1914.

CLARENCE O. CHENEY, M. D., assistant physician.

"Bilateral Broca Lesion without Aphasia." Read before the Ward's Island Psychiatric Society, March 16, 1914.

RALPH P. FOLSOM, M. D., senior assistant physician.

"The Continuous Bath and Pack Treatment." Read before the Ward's Island Psychiatric Society, February 9, 1914.

ERNEST M. POATE, M. D., senior assistant physician.

"Cases with Deliria with Unusual Rapid Recovery." Read before the Ward's Island Psychiatric Society, March 16, 1914.

"Dementia Præcox with Depressive Onset—Its Differentiation from Manic-Depressive Insanity." Read before the Ward's Island Psychiatric Society, December 21, 1914.

JAMES P. KELLEHER, M. D., assistant physician.

"Value of Electrotherapy in Nervous and Mental Diseases." Published in the *International Clinics*, September, 1914.

FRED J. CONZELMANN, M. D., medical interne.

"The Treatment of Syphilis of the Nervous System in the Frankfurt and Hamburg Clinics." Read before the Ward's Island Psychiatric Society in October, 1914, and published in the *STATE HOSPITAL BULLETIN* for November, 1914.

"Self-Analysis." Read before the Ward's Island Nurses Alumni in November, 1914, and published in *The Seney Journal*, December, 1914.

PSYCHIATRIC INSTITUTE.

AUGUST HOCH, M. D., director.

"On the Study of the Personality." Read by invitation before the Princeton Philosophical Society, January, 1914.

"The Mechanicism of Various Forms of Deliria." Read as a part of a symposium at the Psychiatric Club of Bloomingdale Hospital, February 18, 1914.

"On Certain Features of the Delusional and Hallucinatory Content of Manic-Depressive Insanity." Read at the New York Psychiatric Society, March 4, 1914.

"On the Mental Symptoms of Cerebral Arteriosclerosis." Read before the Ward's Island Psychiatric Society, March 16, 1914.

"On the Syphilitic Disorders of the Brain. Their Pathological Anatomy and Symptomatology." Paper, with lantern slide demonstrations, read at the meeting of the Montclair Medical Society, Montclair, N. J., April 27, 1914.

"Psycho-Analysis and Psychiatry." Presidential address at the meeting of the American Psycho-Analytic Society, Albany, May 5, 1914.

(With Dr. G. H. KIRBY.)

"A Study of the Benign Psychoses." Read at the Annual meeting of the American Medico-Psychological Association, Baltimore, May 26-29, 1914.

"Recent Progress in Psychiatry." Read at the Superintendents' Conference, Albany, September 17, 1914.

"The Benign Psychoses" (Psychological Interpretation). Read at the Twenty-fifth Anniversary of the opening of the Johns Hopkins Hospital, Baltimore, October 5-8, 1914.

"Some Fundamental Principles of Modern Psychiatry." Read by invitation before the Utica Medical Library Association, December 7, 1914.

"The Theory of Manic-Depressive Insanity." Read in Boston, December 19, 1914.

CHARLES B. DUNLAP, M. D., chief associate in neuropathology.

"A Consideration of Certain Forms of Meningitis and of Two Cases of Juvenile General Paralysis." Read at the Ward's Island Psychiatric Society, January 11, 1914.

"The Pathology of Syphilis of the Central Nervous System." Read at the College Medical Society of the University and Bellevue Hospital Medical School, March 20, 1914.

"The Pathology of General Paralysis." Read at Baltimore at the Meeting of the American Medico-Psychological Association, May 26, 1914, in the symposium on general paralysis. Published in the *American Journal of Insanity*, October, 1914.

"Report on Pathological Material with Special Reference to the Significance of the Cellular Elements in the Meninges in Various Acute and Chronic Reactions." Read at the Inter-hospital Meeting at the Central Islip State Hospital, December 16-17, 1913. Published in abstract in the *STATE HOSPITAL BULLETIN*, November, 1914.

"The Pathological Changes in the Nervous System in Pellagra." Read at the Ward's Island Psychiatric Society, October 19, 1914. Published in the STATE HOSPITAL BULLETIN, February, 1915.

Contributions to the Annual Report of the Director of the Psychiatric Institute for 1913-1914.

W. W. WRIGHT, M. D., senior assistant physician.

"A Case of Paranoic Condition Presenting an Unusual Course and Final Recovery." Read before the Ward's Island Psychiatric Society, January 11, 1914.

"Review of the History of Pellagra with the Report of a Case." Read before the Ward's Island Psychiatric Society, October 19, 1914. Published in STATE HOSPITAL BULLETIN, February, 1915.

CLARENCE O. CHENEY, M. D., assistant physician for autopsies.

"Anatomical Report of a Case of Arteriosclerosis Simulating Brain Tumor." Read before the Section of Neurology and Psychiatry, New York Academy of Medicine, November 10, 1913.

"A Case with Bilateral Bullet Wound, Broca Lesions without Aphasia." Read before the Ward's Island Psychiatric Society, March 16, 1914, and at the Bloomingdale Hospital Conference, March, 1914.

"Anatomical Report of a Case of Pellagra." Read before the Ward's Island Psychiatric Society, October 19, 1914. Published in STATE HOSPITAL BULLETIN, February, 1915.

"Anatomical Report, with Lantern Slide Presentation, of an Unusual Case of General Paralysis." Read before the Ward's Island Psychiatric Society, December 19, 1914.

Contribution to the Annual Report of the Superintendent of the Manhattan State Hospital, 1913-1914.

JOHN T. MACCURDY, M. D., assistant in psychiatry.

"Allmacht der Gedanken in the Myths of Hephaestus and a Novel of Bulwer Lytton." Read before the American Psycho-Analytic Association, Albany, May 5, 1914. Published in *Imago*, August, 1914.

"The Ethical Aspects of Psycho-Analysis." Read at the Twenty-fifth Anniversary of the Opening of the Johns Hopkins Hospital, Baltimore, October 5, 1914.

"A Psychological Feature of the Precipitating Causes in the Psychoses and its Relation to Art." Read before the American Psychopathological Association, Albany, May 6, 1914.

Published in *Journal of Abnormal Psychology*, December, 1914.

"Some Dynamic Formulations in Psychology." Read in Boston, December 19, 1914.

WALTER L. TREADWAY, M. D., assistant in psychiatry.

"Some Observations on Dementia Præcox." Read before the Ward's Island Psychiatric Society, November 16, 1914.
Published in STATE HOSPITAL BULLETIN, February, 1915.

STATE HOSPITAL COMMISSION.

JAMES V. MAY, M. D., medical member.

"The Health Officer and the Insane." Read before the Sanitary Officers of the State Health Department in May, 1914.

Circular of Information on the Care of the Insane, 1914.

"Statistical Studies of the Insane." *American Journal of Insanity*, October, 1913.

"The Physical Basis of Crime." Read before the Associated Physicians of Long Island on June 6, 1914.

"Modern Psychiatry as Related to Therapeutics." Read before the American Therapeutic Society, May 30, 1914, and published in the *Albany Medical Journal*.

Appointed by the Governor as a delegate to represent the State of New York at various conferences, and as a member of commissions to examine various prisoners under sentence of death.

HORATIO M. POLLOCK, Ph. D., statistician, State Hospital Commission.

"A Statistical Study of 1,739 Patients with Alcoholic Psychoses." Published in STATE HOSPITAL BULLETIN, August, 1914.

"Annual Statistical Review of the Insane in State Hospitals and Private Licensed Institutions." Published in Commission's Annual Report, 1913.

Represented the Commission at Exhibit of the American Medico-Psychological Association, held at Baltimore in May, 1914.

Represented the Commission at the Panama-Pacific International Exposition, February to April, 1915.

INDEX TO VOLUME VII

MAY, 1914—FEBRUARY, 1915

	PAGE		PAGE
AGE, at death of patients with alcoholic psychoses, 268; of patients at time of admission, 246		Binghamton State Hospital, bibliography of physicians, 593; changes in medical staff at, 573; individual items, 590; new features at, 578; notable occurrences at,	584
Alcoholic psychoses, age at death of patients with, 268; ages at time of admission of patients with, 246; a study of 1,739 patients with, 204; cause of death of patients with, 264; color of patients with, 250; constitutional make-up of patients with, 247; environment of patients with, 255; family history of patients with, 252; literacy of patients with, 254; marital condition of patients with, 251; nativity of patients with, 260; occupation previous to admission of patients with, 256; period of hospital residence of patients dying with, 266; physical diseases accompanying types of, 248; table of annual movement of first admissions with, 242; time in hospital of patients with,	262	Boards of Control, care of insane under, 455; discussion of paper presented by Dr. Salmon on, 564; name, powers, etc., in different States, 466; population of States with,	470
"Alcoholism and Manic-Depressive Insanity," by Dr. G. C. H. Burns,	393	Brain atrophy, a study of	169
Amsden, Dr. George S., paper on "The Intra-Spinal Treatment of Paresis,"	438	Brockway, Mr. A. L., address by,	559
"The Treatment of General Paralysis by Salvarsanized Serum,"	554	Buffalo State Hospital, changes in medical staff at, 573; quarterly conference at,	387
Aphasia and Apraxia, notes on case of,	400	Burns, Dr. G. C. H., paper on "Alcoholism and Manic-Depressive Insanity,"	393
Appendix,	63	CAMPBELL, Dr. C. Macfie, thesis presented to University of Edinburgh on "Local Symptoms in General Paralysis,"	5
Armstrong and Betts, paper on "Cyclic Dementia Præcox," 388		Central Islip State Hospital, changes in medical staff, 575; individual items, 591; new features at, 582; notable occurrences, 587; quarterly conference at,	393
BARNHARDT, Dr. W. N., paper on "Aphasia and Apraxia," 400		Central neuritis, report on case showing symptoms with recovery of,	420
Bibliography of physicians of the State service,	592	Cheney, Dr. C. O., autopsy findings in Dr. Wright's case of pellagra,	486
		Clark, Dr. L. Pierce, paper on "A Critical Digest of Some of the Newer Work Upon Homosexuality in Man and Woman,"	328
		Clinical observations, list of cases in,	63

	PAGE		PAGE
Color of patients with alcoholic psychoses,	250	graph of gyrus rectus, opposite 48; microphotograph showing cortical atrophy, opposite 50; photograph showing base of brain, opposite 28; photograph of brain showing atrophy, opposite 34, 44; photograph of occipital lobe, opposite 29; photograph of pons and mid-brain, opposite 22; microphotograph of right middle cerebral artery and branch supplying area of softening, opposite 22; photographs showing cortical softening, opposite 49; photograph showing gumma, opposite 26; microphotograph of cortex showing advanced stage of, opposite 52; treatment of, by salvarsanized serum,	554
Committee on Legislation, report of,	568	Gorrill, Dr. George W., paper on "Combined Psychoses,"	387
Committee of Statistics and Forms, report of,	152, 450	Gowanda State Hospital, bibliography of physicians, 594; changes in medical staff, 574; individual items, 589; new features at, 579; notable occurrences at,	585
Conlin, Dr. W. A., paper on "Lumbar Puncture Findings in Epilepsy,"	420	HABEAS corpus cases,	587
Control, State Boards of,	457	"Heating and Ventilation from the Physician's Point of View," paper by Dr. R. H. Hutchings,	148
Conzelmann, Dr. Fred J., paper on "Treatment of Syphilis of the Nervous System in the Frankfurt and Hamburg Clinics,"	309	Hoch, Dr. August, "Fifteen Cases of Aphasia,"	400
Corcoran, Dr. David, report on "A Case Showing Symptoms of Central Neuritis with Recovery,"	420	"Recent Progress in Psychiatry,"	436
Cranial Capacity, tables of,	176	Homosexuality in man and woman, a critical digest of some of the newer work upon,	328
DELANEY, Commissioner, remarks of,	445	Howard, Dr. E. H., report of the Purchasing Committee,	448
Dementia Præcox, cyclic form of, 388; occurrence of convulsions in, 407; some observations on,	496	Hudson River State Hospital, bibliography of physicians, 592; changes in medical staff at, 572; individual items, 589; new features, 577; notable occurrences at,	584
"Dementia Præcox, Paraphrenia, and Paranoia," paper read before Ward's Island Psychiatric Society, by Dr. George H. Kirby,	269	Hutchings, Dr. R. H., "Heating and Ventilation from the Physician's Point of View,"	148
Dunlap, Dr. Charles B., discussion of case of pellagra, 488; report on pathological material,	404		
ENVIRONMENT, of patients with alcoholic psychoses,	255		
FAMILY history, of patients with alcoholic psychoses,	252		
"Father Complex," discussion of paper on,	392		
Fletcher, Dr. Christopher, paper "A Consideration of the Prognosis of Dementia Præcox with Report of Cases Discharged Recovered,"	389		
GENERAL paralysis, focal symptoms in, 5; illustration, Sub-Cortical Softening, opposite 20; microphoto-			

	PAGE		PAGE
ILLUSTRATION, microphoto- graph of cortex showing ad- vanced stage in general paralysis, opposite 52; micro- photographs of gyrus rectus, opposite 48; microphoto- graph of right middle cere- bral artery and branch sup- plying area of softening, opposite 22; photograph of base of brain, opposite 28; photograph of occipital lobe, opposite 29; photograph of pons and mid-brain and pons, opposite 22; photographs showing cortical softening, opposite 49; microphoto- graph showing destruction of the cortex, opposite 51; pho- tograph showing gumma, opposite 26; sub-cortical sof- tening, opposite 20.		"Lumbar Puncture Findings in Epilepsy," by Dr. W. A. Conlin,	420
Index to Volume VII,	601	MACCURDY, Dr. J. G., "Psy- chological feature of the Pre- cipitating causes in the Psy- choses and its Relation to Art,"	514
Insanity, a study of brain atrophy in relation to, . . .	169	Manhattan State Hospital, bib- liography of physicians, 595; changes in medical staff, 575; individual items, 591; new features at, 581; notable occurrences at,	586
Inter-hospital meeting, held at Buffalo, proceedings of, . . .	387	Manic-depressive, occurrence of convulsions in,	407
Inter-hospital meeting, held at Central Islip, proceedings of, 393		Marital condition, of patients with alcoholic psychoses, . .	251
KING, Dr. Robert, paper read at Quarterly Conference, "Temporary Manifestations of Paranoid Symptoms," . . .	388	May, Dr. James V., bibliogra- phy of, 599; discussion, 153, 164, 437, 438	
Kings Park State Hospital, bib- liography of physicians, 594; changes in medical staff at, 574; individual items, 590, new features at, 580; notable occurrences,	585	Medical service at State hospi- tals, changes in,	572, 576
Kirby, Dr. George H., paper on "Dementia Præcox, Para- phrenia and Paranoia," . . .	269	Mental deterioration, tables of, 176	
Kræpelin's latest conception, by Dr. George H. Kirby, . . .	269	Mental measurement, report of a higher scale of,	318
Kuhlmann, Dr. Helene, paper on "Father Complex,"	392	Middletown State Hospital, bibliography of physicians at, 592; changes in medical staff at, 573; individual items, 589; new features at,	578
LITERACY, of patients with alcoholic psychoses,	254	Mills, Dr. G. W., "Two Clin- ical cases of Aphasia," . . .	400
Long Island State Hospital, changes in medical staff at, 575; individual items, 590; new features at, 581, notable occurrences at,	586	Minutes of quarterly confer- ence, February, 1914,	139
		Minutes of quarterly confer- ence, December 4, 1914, . . .	552
		Mohansic State Hospital, bib- liography of physicians at, 594; changes in medical staff at, 574; individual items, 590; new features at,	580
		NATIVITY, of patients with alcoholic psychoses,	260
		News of the service dur- ing 1914,	572
		OCCUPATIONS, of patients with alcoholic psychoses,	256

PAGE	PAGE
"PARANOIA," by Dr. George H. Kirby,	to Insanity," 169; "Preliminary Report of a Higher Scale of Mental Measurement,"
Paranoia, review of Kræpelin's latest conception,	318
Paranoid symptoms, temporary manifestations of,	ST. LAWRENCE State Hospital, bibliography of physicians at, 593; changes in medical staff at, 573; new features, . .
"Paraphrenia," paper read by Dr. George H. Kirby, . . .	579
Paresis, intra-spinal treatment of, 438; summary of laboratory tests,	Salmon, Dr. Thomas W., "The Care of Insane Under State Boards of Control,"
Pathological material, report on,	455
Payne, Dr. Charles R., some contributions of psychoanalysis to the problems of education, article by, . . .	Simon, Dr. T. W., paper on "The Occurrence of Convulsions in Dementia Præcox, Manic-Depressive Insanity and Allied Groups," . . .
Pellagra, pathological changes in the nervous system in, 488; "Review of History of Pellagra with Report of a Case," by Dr. Wright, 471; symptomatography, classification and treatment of, 479; theories in regard to etiology of, 472	407
Physical diseases, of patients with alcoholic psychoses, . .	State Hospital Commission, bibliography of,
Pollock, Dr. H. M., "A Statistical Study of 1,739 Patients with Alcoholic Psychoses, 204; bibliography of, . .	599
599	Syphilis, treatment of
Psychiatric Institute, bibliography of physicians at, 596; changes in medical staff at, 576	TREADWAY, Dr. Walter L., "Some Observations on Dementia Præcox,"
Psychoanalysis, some contributions to,	496
Purchasing Committee, report of,	UTICA State Hospital, bibliography of physicians at, 592; changes in medical staff at, 572; new features, 576; notable occurrences at, . . .
REPORT, of Committee on Legislation,	582
Rochester State Hospital, changes in medical staff at, 574	WEARNE, Dr. R. G., paper prepared by Dr. Mills and himself on "Certain Cases of Exhaustion with Nephritis and Acetonuria found in the Insane, and their Treatment," 424
Rosanoff, Dr. A. J., "A Study of Brain Atrophy in Relation	Willard State Hospital, bibliography of physicians at, 592; changes in medical staff at, 572; individual items, 589; new features at, 577; notable occurrences at,
	583
	Wright, Dr. W. W., "Review of the History of Pellagra with Report of a Case," . .
	471



